National Energy Board | Office national de l'énergie

Reasons for Decision

SemCAMS Redwillow ULC

Redwillow Pipeline Project

GH-2-2008

March 2009

Facilities

Canada

National Energy Board

Reasons for Decision

In the Matter of

SemCAMS Redwillow ULC

Application dated 7 December 2007 for a Certificate of Public Convenience and Necessity under section 52 of the *National Energy Board Act* (NEB Act) authorizing SemCAMS Redwillow ULC (SemCAMS) to construct and operate the Redwillow Pipeline Project (Project).

GH-2-2008

March 2009

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Cat No. NE22-1/2009-4E
ISBN 978-1-100-11979-3

This report is published separately in both official languages. This publication is available upon request in multiple formats.

Copies are available on request from:
The Publications Office
National Energy Board
444 Seventh Avenue S.W.
Calgary, Alberta, T2P 0X8
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For pick-up at the NEB office:
Library
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Printed in Canada

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N° de cat. NE22-1/2009-4F
ISBN 978-1-100-90966-0

Ce rapport est publié séparément dans les deux langues officielles. On peut obtenir cette publication sur supports multiples, sur demande.

Demandes d'exemplaires :
Bureau des publications
Office national de l'énergie
444, Septième Avenue S.-O.
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Des exemplaires sont également disponibles à la bibliothèque de l'Office
(rez-de-chaussée)

Imprimé au Canada

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Acronyms and Abbreviations

Act or NEB Act	*National Energy Board Act*
AIA	Archaeological Impact Assessment
Alliance	Alliance Pipeline Ltd.
Anchor Agreement	10-year service contract with Anchor Customers to use or pay for 1 983 10^3m^3 per day (70 MMscf/d) of capacity on the Redwillow Pipeline
Anchor Customers	Husky Oil Operations Limited, Shell Canada Energy, BG International Limited and Suncor Energy Inc.
Annex N	*Directive 041, Adoption of CSA Z662-07 Annex N, Guidelines for Integrity Management Programs*
Applicant	SemCAMS Redwillow ULC (SemCAMS)
Applicant's Parent	SemCAMS ULC
Application	Application to the Board, pursuant to section 52 of the *National Energy Board Act* for a Certificate of Public Convenience and Necessity for the Redwillow Pipeline Project
as-filed route	Pipeline route originally proposed by the Applicant
BC	British Columbia
Bcf/d	billion cubic feet per day
BCMEMPR	British Columbia Ministry of Energy, Mines and Petroleum Resources
Board or NEB	National Energy Board
Board's April 2002 Letter	Board letter dated 24 April 2002 to all oil and gas companies under the Board's jurisdiction regarding Security and Emergency Preparedness and Response Programs
CCAA	*Companies' Creditors Arrangement Act*
CEA Act	*Canadian Environmental Assessment Act*
Certificate	Certificate of Public Convenience and Necessity issued under section 52 of the NEB Act authorizing the construction and operation of a facility.

CO_2	carbon dioxide
Court	Court of Queen's Bench of Alberta
CSA	Canadian Standards Association
CSA Z662-07	*Canadian Standards Association Z662-07*, Oil and Gas Pipeline Systems
CSA Z731-03	*Canadian Standards Association Z731-03*, Emergency Preparedness and Response
DFO	Fisheries and Oceans Canada
Draft ESR	Draft Environmental Screening Report
EA	environmental assessment
EMP	Emergency Management Program
EPM	Emergency Procedures Manual, also referred to as Emergency Response Plan
EPP	Environmental Protection Plan
EPZ	Emergency Planning Zone
ERCB or EUB	Alberta Energy Resources Conservation Board
ESA	Environmental and Socio-Economic Assessment
ESR	Environmental Screening Report
ESD	emergency shut-down
E&Y	Ernst & Young Inc.
Federal Coordination Regulations	CEA Act *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements*
GP(s)	Government Participant(s)
HDD	horizontal directional drilling
H_2S	hydrogen sulphide
ILI	in-line inspection
IMP	Integrity Management Program
IRC	Horse Lake First Nation Industrial Relations Committee

K3	Kaybob South #3 Gas Plant
km	kilometre(s)
KP	kilometre post
m	metre(s)
m^3/d	cubic metres per day
mm	millimetre(s)
MMscf/d	million standard cubic feet per day
Monitor	Court-appointed Monitor under the CCAA
MOP	maximum operating pressure
Mt. Not reroute	Alternate pipeline route around Mt. Notogosegunwatchi
NACE	National Association of Corrosion Engineers
NPS	nominal pipe size (in inches)
NGTL	NOVA Gas Transmission Limited, a wholly owned subsidiary of TransCanada PipeLines Limited
NIT	NOVA Inventory Transfer
OD	outside diameter
OPR-99	*Onshore Pipeline Regulations, 1999*
ppm	parts per million
PPBoR	Plan, Profile and Book of Reference
Project or Redwillow Project	Redwillow Pipeline Project
RA(s)	Responsible Authority(ies)
ROE	radius of exposure
RoW	right of way
RSA	Regional Study Area
SCADA	Supervisory Control and Data Acquisition
SemCAMS	SemCAMS Redwillow ULC
SemCAMS affiliates	Direct or indirect subsidiaries of SemGroup, L.P.
SemGroup	SemGroup, L.P.

SMYS	Specified minimum yield strength
TC	Transport Canada
TLU	Traditional Land Use
WCSB	Western Canada Sedimentary Basin
Westcoast System	Refers to the natural gas gathering and processing system operated by Westcoast Energy Inc., carrying on business as Spectra Energy Transmission.

Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* and the regulations made thereunder; and

IN THE MATTER OF an application dated 7 December 2007 filed with the National Energy Board by SemCAMS Redwillow ULC (SemCAMS) under file OF-Fac-Gas-S393-2007-01 01 for a Certificate of Public Convenience and Necessity under section 52 of the *National Energy Board Act* to construct and operate a new sour gas pipeline from the Grizzly Valley region of northeastern British Columbia to processing facilities located near Grande Prairie, Alberta; and

IN THE MATTER OF Hearing GH-2-2008;

HEARD in Dawson Creek, British Columbia on 28, 29, 30 and 31 October 2008;

BEFORE:

G.A. Habib	Presiding Member
K.M. Bateman	Member
D.M. Hamilton	Member

Appearances	**Participants**	**Witnesses**
P.R. Jeffrey	SemCams Redwillow ULC	C. Dean-Milino
P. Khan		C. Hayes
J. Jamieson		R. Nimmo
		S. Radway
		R. Reeson
		L. Lunt
		D. Walls
		G. Bryant
		L. Petrick
		M. Horner
		G. Skeavington
		B. Polinkas
		D. Bainbridge
		E. Martin
		A. Springer
S. Anderson	Husky Oil Operations Limited	
P. Attalla		
M. Henderson	Shell Canada Energy	

W.L. McElhanny R.S. Joseph	Horse Lake First Nation	P. McCullough J. Horseman D. Yeager A. Wagenaar C. De La Marc S. Ross
N. Napoleon	Saulteau First Nations	
J. Jamison L. Jamison	Landowners	
J. Boyte J. Boyte	Landowners	
E. Saugstad	District of Chetwynd	
J. Kurtz	Fisheries and Oceans Canada	
R.M. Zanin	National Energy Board	

Oral Statements

J. Boyte
M. Jamison

Chapter 1

Introduction

1.1 The Application

On 7 December 2007 SemCAMS Redwillow ULC (SemCAMS or Applicant) applied to the National Energy Board (Board or NEB), pursuant to section 52 of the *National Energy Board Act* (Act or NEB Act), for a Certificate of Public Convenience and Necessity (Certificate) to construct and operate the Redwillow Pipeline Project (Project). The purpose of the Project is to transport dehydrated sour natural gas from the Grizzly Valley area southwest of Tumbler Ridge, British Columbia (BC) to existing Alberta-regulated gathering and processing facilities near Grande Prairie, Alberta. The proposed facilities would transport approximately 2 295 10^3m3/d (79 MMscf/d) of dehydrated sour natural gas containing up to 30 percent hydrogen sulphide (H_2S) and 15 percent carbon dioxide (CO_2) from an existing dehydration facility operated by Shell Canada Energy at Wolverine River (b-33-G/93-P-03) to the existing NW Wapiti Pipeline Valve Station No. 2 (LSD 12-30-68-8 W6M). The Project facilities would include approximately 150 km of new 323.9 mm outside diameter (OD) (NPS 12) with a maximum operating pressure (MOP) of 14 600 kPa (2 118 psi) and ancillary facilities, a description of which is found in Chapter 3, Facilities. The total capital cost of the applied-for facilities is estimated at $151 million.

As part of its application, SemCAMS also requested:

(a) approval of an alternate or reroute around Mt. Notogosegunwatchi (Mt. Not)[1]

(b) an exemption pursuant to section 58 of the NEB Act from the requirements of subsections 31(c) and (d) and section 33 of the NEB Act upon demonstration to the Board of the acquisition of the requisite easement rights from the Crown of the affected lands;

(c) an Order made pursuant to Part IV of the NEB Act designating SemCAMS as a Group 2 company; and

(d) such further and other relief as SemCAMS may request or as the Board may deem appropriate pursuant to the NEB Act, including section 20 thereof.

Figure 1-1 provides an overview of the Redwillow Pipeline Project.

1.2 GH-2-2008 Hearing Process

On 8 February 2008, the Board issued Hearing Order GH-2-2008 which established the process for the Board's consideration of the Application. The Hearing Order included the List of Issues which the Board proposed for consideration during its assessment of the Application. The List of Issues is included in Appendix I of these Reasons.

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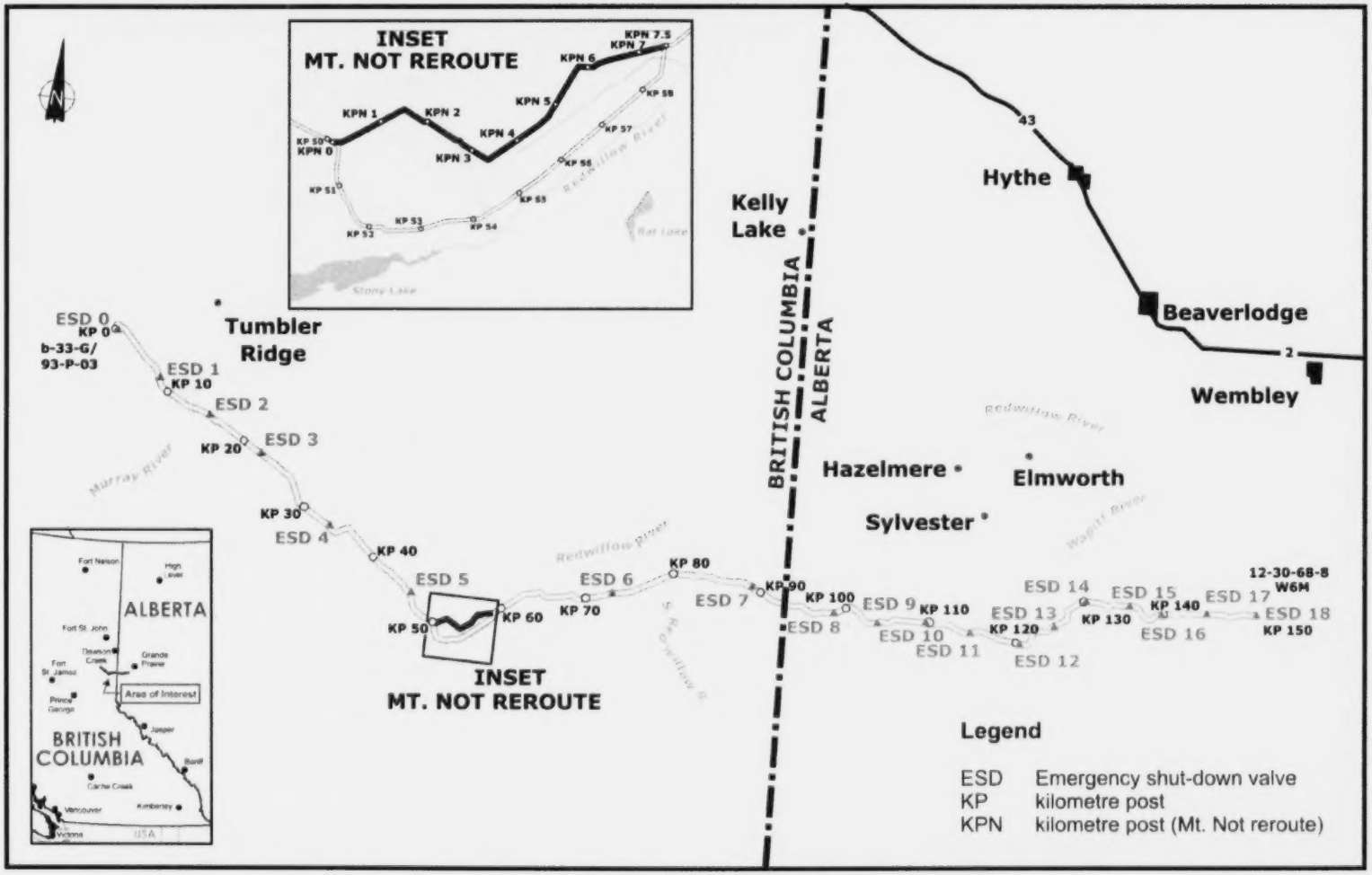
1 Further information about the reroute can be found in the Environmental Screening Report.

Figure 1-1
Redwillow Pipeline Project



On 20 March 2008 the Board suspended the GH-2-2008 hearing schedule to allow the Applicant time to provide further information about the potential impacts on traditional land use and to provide information on the environmental impacts of proposed route changes as identified in its additional evidence dated March 2008.

On 10 April 2008 the Board determined that sufficient information about the potential impacts of the Project on traditional land use and the environment had not been filed, noting that further field studies were planned for June and July 2008. The Board decided that the hearing schedule would remain suspended. On 22 May 2008, SemCAMS informed the Board that it would provide the information described in the Board's 10 April 2008 letter by 12 August 2008.

On 19 June 2008, the Board issued an amended Hearing Order AO-1-GH-2-2008 reconvening the hearing.

On 22 July 2008, SemGroup, L.P. (a United States-based entity that ultimately controls SemCAMS) and SemCAMS ULC (the Applicant's Parent), sought and obtained bankruptcy protection in the U.S. and Canada respectively. In light of this development, the Board sought information on the financial situation of the Applicant and the financial viability of the Redwillow Project. In a 5 August 2008 response, the Applicant indicated that the Project would be financeable on its own merits and urged the Board to proceed with the hearing in October 2008 as scheduled.

An oral hearing was held in Dawson Creek, BC from 28 to 31 October 2008. The oral portion of the hearing concluded with the Board accepting oral and written argument. The record, however, remained open pending receipt of responses from the Applicant to a number of Board questions. Once all responses were filed with the Board, the record was closed on 26 January 2009.

Projects such as this require a Certificate under section 52 of the NEB Act which triggers the requirement for an environmental assessment (EA) under the *Canadian Environmental Assessment Act* (CEA Act). Since the Project requires less than 75 km of newright of way (RoW), a screening level of EA under the CEA Act was required.

On 30 January 2009, the Board released for public comment a Draft Environmental Screening Report (Draft ESR).

The final Environmental Screening Report (ESR) addresses the comments received on the Draft ESR, provides the views of the Board on environmental and socio-economic matters covered under the CEA Act, and includes the Board's CEA Act determination. The final ESR is included as Appendix IV.

1.3 In the Public Interest

In reviewing an application for a Certificate, the Board must consider whether the applied-for facilities are in the overall Canadian public interest. In doing so, the Board must, after carefully weighing all of the evidence in the proceeding, exercise its discretion in balancing the interests of a diverse public. In considering whether to grant a Certificate, the Board must be guided by the public interest and assess whether it outweighs any burdens to private interests.

The Board has described the public interest in the following terms:

> *The public interest is inclusive of all Canadians and refers to a balance of economic, environmental and social interests that change as society's values and preferences evolve over time. As a regulator, the Board must estimate the overall public good a project may create and its potential negative aspects, weighing its various impacts, and make a decision.*[2]

The Board heard evidence on such matters as engineering design and safety; supply and markets; financial viability of the Project; Aboriginal consultation and public engagement; land and routing; and environmental and socio-economic effects. The Board concluded that all of these matters are relevant to its determination of whether the Application satisfies present and future public convenience and necessity and are addressed in greater detail in the following chapters.

In coming to its findings, the Board considered all of the evidence on the record in this matter. The regulatory documents on file in the GH-2-2008 Hearing are available on the Board's website, www.neb-one.gc.ca.

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2 *Pipeline Regulation in Canada: a Guide for Landowners and the Public*, National Energy Board, page 21.

Chapter 2

Economic Feasibility

In making its determination on the economic feasibility of a proposed pipeline, the Board assesses the need for the facilities, their likelihood of being used at a reasonable level over their economic life and the likelihood of demand charges being paid. The Board considers the supply of natural gas that will be available to be shipped on the pipeline, the transportation contracts underpinning the facilities, and the existence of markets. As well, the Board considers the company's ability to finance the construction and ongoing operations of the proposed pipeline. Other economic impacts of the proposed project are addressed in Chapter 9, Environment and Socio-Economic Matters.

2.1 The Need for the Facilities

SemCAMS submitted that access to sour gas processing capacity in the vicinity of the Project is constrained, thus impeding further gas development. The proposed pipeline would transport gas that is currently shut-in, and could open up eastern markets to gas producers in the Grizzly Valley region. Furthermore, the Project would have the distinct advantage of minimizing gas plant proliferation by connecting the shut-in gas to an existing, but under-utilized, gas processing plant in Alberta.

2.1.1 Gas Supply, Markets and Contracted Capacity

Gas Supply

The geological area to be served by the Project includes the Baldonnel Trend (Ojay, Grizzly Valley, Deep Basin Cadomin development) that is in the western part of the 93-P and 93-I regions of the National Topographic Survey Grid in northeastern BC. The Project would be supplied initially by production from Husky Oil Operations Limited, Shell Canada Energy, BG International Limited and Suncor Energy Inc. (Anchor Customers). The Anchor Customers have production in the Bullmoose area with the initial wells containing multiple sour gas zones. This production represents trapped gas that is not dedicated to any pipeline system. In addition, the Anchor Customers have indicated that further drilling operations will occur along the Project route to maintain a production profile of 1 983 10^3m^3 per day (70 MMscf/d) for the first ten years of production.

SemCAMS anticipates that the additional sour gas development along the Project route would extend the delivery profile beyond ten years. In support of this, the Applicant noted that a joint 2006 report by the NEB and BC Ministry of Energy, Mines and Petroleum Resources (BCMEMPR) found that the remaining ultimate potential for the Deep Basin Region of northeastern BC is 164 111 10^9m^3 (5 825 Bcf). Based upon the resource potential identified in the area, SemCAMS is proposing to build an NPS 12 pipeline in order to meet future incremental volumes with additional compression.

Markets

SemCAMS submitted that the Project would open up eastern markets to producers in the Grizzly Valley region of northeastern BC, where current pipeline and facility infrastructure moves gas to western markets and is operating at or near design capacity. The Applicant submitted that the Project will increase market liquidity for area producers, make the region more cost competitive and avoid the proliferation of sour gas gathering and processing facilities by interconnecting with existing SemCAMS operated facilities.

Specifically, the Project would connect to the NW Wapiti Pipeline sour gas gathering system and transport sour gas to the Kaybob South #3 Gas Plant (K3 Plant), both regulated by the Province of Alberta. The K3 Plant currently has capacity to accept additional sour gas volumes from the proposed Project. SemCAMS' affiliates have applied for and received EUB approvals for pipeline looping and compression that would be required on the downstream gathering facilities. The Anchor customers have commercial arrangements in place to ensure access to the interconnected downstream gathering and processing facilities. The Applicant submitted that the K3 Plant currently has unutilized licensed sulphur processing capacity that is in excess of that required for the gas volumes to be processed as a result of the Project. Once processed, the sweet gas would be available for transport to markets in North America through the pipeline network of either Alliance Pipeline Ltd. (Alliance) or NOVA Gas Transmission Limited, a wholly owned subsidiary of TransCanada PipeLines Limited (NGTL), both of which are already connected to the K3 Plant, while the formed sulphur would also be available to the market.

Contracted Capacity

The Anchor Customers have agreed to a ten year service commitment to use-or-pay for 1 983 $10^3m^3/d$ (70 MMscf/d) of capacity on the proposed pipeline (Anchor Agreement). The estimated capacity of the Project is 79 MMcf/d. Under the terms of the Anchor Agreement, the Applicant would recover a set capital fee based on actual construction costs and flow through of all operating costs related to the Anchor Customers' share of total committed volumes (70 MMcf/d). The payments from the Anchor Customers would be in the form of reservation charges and would be charged whether or not gas flows on the proposed pipeline. There is also estimated to be extra capacity of 9 MMcf/d that would not be paid for by Anchor Customers and for which SemCAMS would be financially responsible in the event it is unable to attract additional volumes to the Project.

Views of Interested Parties

The Anchor Customers all supported the Project. BG International Limited, ConocoPhillips Canada Limited and ConocoPhillips Canada (BRC) Ltd. stated their belief that the Project would be beneficial to northeast BC producers by providing a gas gathering and processing alternative, thus encouraging competition for those services. Shell Canada Energy and Husky Oil Operations also submitted that the long term use-or-pay contract for 70 MMcf/d constitutes strong evidence of the need for the pipeline and would ensure that it is used and useful. In addition to the Anchor Customers, Devon Canada Corporation expressed support for the Project and commented that it would be beneficial for gas producers by providing additional gathering and processing

alternatives in BC and Alberta. Devon is also an owner of the K3 Plant and supports SemCAMS' efforts to attract gas to the underutilized facility.

Views of the Board

SemCAMS is proposing to build a commercially at risk pipeline, underpinned by a use-or-pay contract with established gas producers that will secure over 88 percent of the available capacity for a ten year term. This use-or-pay contract represents a substantial demand charge obligation by the Anchor Customers. With respect to the small amount of capacity to which the applicant has risk exposure, the Board notes that in addition to supply from the Anchor Customers, there is potential for other supply in the Project area from both Anchor and non-Anchor Customers. The Board also notes that the supporting gas supply represents incremental production and will not displace gas on current facilities.

The Project itself would represent a competitive alternative for area producers and could provide direct access to eastern markets through currently underutilized gathering and processing facilities that tie in to both the Alliance and NGTL systems. The Alliance and NGTL pipeline systems would provide access to an actively traded market where excess downstream transportation capacity exists.

The Board is satisfied that the evidence on supply, markets and contracted capacity for the Project provides a reasonable expectation that the Project is needed and would be used at a reasonable level throughout its economic life.

2.2 Ability to Finance the Proposed Pipeline

The capital cost of the proposed facilities is approximately $151 million.[3] Under the agreement with Anchor Customers, SemCAMS ULC (on behalf of itself and its affiliates, including SemCAMS) must first complete and bring to commercial operation the Project at its own expense. Once in service, SemCAMS ULC would be entitled to recover its expense through the use-or-pay tolls charged by SemCAMS from the Anchor Customers. These tolls are based on the actual construction costs and flow through of operating costs associated with shipping the target volume (70 MMcfd). SemCAMS ULC is responsible for all costs associated with the remaining capacity (approximately 9 MMcfd) of the proposed pipeline.

SemCAMS submitted that it intended to finance the Project through the equity or the line of credit of SemGroup, L.P., (SemGroup), a Tulsa, Oklahoma-based midstream service limited partnership and the ultimate parent of the Applicant.

---

3 In the event the Project is approved, the Board would utilize the Applicant's estimated cost of construction for the Redwillow Pipeline for the purpose of subsection 5.2(1) of the *National Energy Board Cost Recovery Regulations*.

On 22 July 2008, SemGroup and certain of its direct and indirect subsidiaries in the United States filed petitions to restructure under Chapter 11 of the U.S. Bankruptcy Code. SemCAMS ULC, an indirect subsidiary of SemGroup and the Applicant's Parent, sought from the Court of Queen's Bench of Alberta (the Court), and was granted, protection from its creditors under the *Companies' Creditors Arrangement Act*, R.S.C. 1985, c. C-36 (CCAA) on the same day.

Regarding the changed business and financial situation of the Applicant's Parent and its affiliates, SemCAMS maintained in its evidence that SemCAMS ULC continues to be financially viable; however, it was compelled to seek protection under the CCAA because it is a guarantor of certain secured and unsecured financial obligations of SemGroup. In addition, SemCAMS ULC is owed $23 million by SemCanada Energy Company, a gas marketing affiliate, that was due and payable 25 July 2008. However, that sum was not to be paid pursuant to a court order issued in the CCAA proceedings.

The Applicant filed a letter from Ernst & Young Inc. (E&Y), the Court appointed Monitor (Monitor), discussing the financial viability of the Project. In the letter, E&Y is of the view that the "Redwillow project" appears likely to be independently financeable. Furthermore, E&Y does not expect the CCAA proceedings of SemCAMS ULC, in and of themselves, to be an impediment to the financing of the Project. Finally, based on its review of the financial projection of SemCAMS ULC and the Project economics, E&Y takes the view that the Project has material incremental enterprise value for SemCAMS ULC.

To date, the Project has been funded by the operating cash flow of SemCAMS ULC. Cash projections as filed in the CCAA proceedings indicate that SemCAMS ULC would be able to fund the Project until March 2009. By that date, SemCAMS ULC will have incurred approximately $13 million on the Project. Long-term project financing has not been secured, because, according to the Applicant, obtaining such financing is a costly undertaking and it is not yet required. However, to meet the timeline of starting construction in the fall of 2009, project financing would be required in the second quarter of 2009. The intent is to have such financing in place or, potentially, to have a new owner, prior to project financing being required.

On 22 October 2008, SemCAMS ULC obtained a court order extending the stay period to 2 March 2009. On the same day, the Court also approved a process for the solicitation of offers to purchase and/or to recapitalize or restructure SemCAMS ULC. This process is designed to lead up to the execution of a definitive agreement by the end of February 2009, conditional upon Court approval.

Given the commercial arrangements in place which would require the gas from the Anchor Customers to be processed in the connecting downstream facilities, the Redwillow Pipeline and the connecting downstream facilities are offered together. SemCAMS does not expect that the proposed pipeline and the downstream facilities would be acquired by different parties. As a result of the solicitation process, SemCAMS indicated that project financing could be obtained through the new owner.

In the event that SemCAMS ULC is not sold under the solicitation process, SemCAMS indicated that with the equity position built up by way of the expenditures on the Redwillow Pipeline and the opportunity to access debtor-in-possession financing it would have, by the second quarter of

2009, a 25 percent equity position in the Project. With that, SemCAMS contended that it would be able to obtain the remaining 75 percent of project financing and commence construction in September or October 2009.

Views of the Board

The Board notes that SemCAMS was set up for the purposes of developing the Redwillow Pipeline and that financing for the Project was to be provided by its parent, SemCAMS ULC. The parent company is currently involved in CCAA proceedings creating uncertainty with respect to its ability to finance the Project.

The Board notes that Anchor Customers are under contract for use-or-pay tolls, based on actual construction costs for close to 90 percent of the capacity of the pipeline after SemCAMS ULC, through the Applicant, has built and brought the proposed facilities into commercial operation at its own expense.

SemCAMS ULC has demonstrated its ability to generate significant operating cash flow while it is in CCAA proceedings, accumulating equity in the proposed Project. That equity, in conjunction with the strong commitment from the Anchor Customers, provides the Applicant with an opportunity to access the financing required to complete construction of the Redwillow Pipeline and to bring it into commercial operation. As well, the Board has given weight to the views of the Monitor regarding the independent financeability of the Project.

Based on the evidence adduced in this proceeding, the Board is of the view that the Project could be financed on its own merits.

The Board considers it necessary to ensure that construction would not commence unless and until project financing has been secured. Therefore the Board would require the Applicant to demonstrate, prior to commencement of construction, that adequate financial resources have been secured to complete and bring into commercial operation the Redwillow Pipeline (Condition 6).

Chapter 3

Facilities

The Board uses a risk-based approach in ensuring that NEB-regulated facilities and activities are safe and secure, from their initial construction through to their eventual abandonment. In its consideration of the safety and security of proposed facilities, the Board assesses at a conceptual level whether or not the facilities are appropriately designed for the properties of the product being transported, the range of operating conditions, and the human and natural environment where the facility would be located. Specific considerations include the company's approach to engineering design, integrity management, security, emergency management and preparedness, and health and safety.

When a company designs, constructs, operates or abandons a pipeline, it must do so in accordance with the NEB Act and all applicable regulations including the NEB's *Onshore Pipeline Regulations, 1999* (OPR-99), the commitments made during the hearing and the conditions attached to any approval. OPR-99 references various engineering codes and standards including *Canadian Standards Association Z662-07 Oil and Gas Pipeline Systems* (CSA Z662-07). The company is responsible for ensuring that it follows the design, specifications, programs, manuals, procedures, measures and plans developed and implemented by the company in accordance with OPR-99.

3.1 Description of Facilities

SemCAMS proposes to construct and operate a 150 kilometre 323.9 mm OD (NPS 12) buried pipeline to transport approximately 1 983 $10^3m^3/d$ (70 MMscf/d) of dehydrated sour natural gas (up to 30 percent H_2S and 15 percent CO_2) from the Grizzly Valley area southwest of Tumbler Ridge, BC into existing Alberta-regulated gathering and processing facilities. The full capacity of the facilities under the proposed configuration is up to 2 295 $10^3m^3/d$ (79 MMscf/d). Depending on the route utilized, approximately 93 km of the pipeline would be constructed in BC and 57 km in Alberta.

SemCAMS submitted that, in addition to the pipeline, the ancillary facilities associated with the Project include:

- a pig launching assembly at the start of the pipeline where it interconnects with Shell's Wolverine River Dehydration Facility;
- 19 emergency shut-down (ESD) valve stations located at intervals along the Project route to sectionalize the pipeline;
- an impressed current cathodic protection system;
- a supervisory control and data acquisition (SCADA) radio communications system comprising radio towers at each of the ESD valves, radio repeater stations and associated equipment, buildings, and access; and
- associated and ancillary gathering pipeline facilities.

3.2 Design, Construction and Transportation of Sour Gas

SemCAMS submitted that the applied-for facilities would be designed, constructed, tested and operated in accordance with CSA Z662-07, the NEB Act, OPR-99, and other standards, specifications and codes referenced therein.

SemCAMS has also committed to adopting Alberta Energy Resources Conservation Board (ECRB) *Directive 041, Adoption of CSA Z662-07 Annex N, Guidelines for Integrity Management Programs* (Annex N) as mandatory for its operation. Annex N prescribes minimum standards regarding the design, materials, construction, operation and maintenance of gas pipeline systems, with specific requirements for sour service pipelines.

In addition to the commitments to comply with the above-noted regulations and standards, the Applicant also committed to the following to ensure its pipeline is designed to accommodate sour gas with a content of 30 percent H_2S:

- ensuring that materials meet *NACE MR-0175, Petroleum and Natural Gas Industries — Materials for use in H_2S-containing environments in oil and gas production;*
- testing line pipe materials for susceptibility to hydrogen induced cracking;
- specifying that materials have a maximum hardness limit of Rockwell C (HRC) 22;
- specifying a maximum carbon equivalent in piping materials of 0.43; and
- ensuring that all induction bends for the pipeline will be stress relieved.

Welding

With respect to welding, SemCAMS committed that circumferential (girth) and field welding (joining) of the pipeline will meet all applicable codes and standards. Further, all work will be completed in accordance with an approved and qualified procedure employing manual shielded metal arc welding, and that 100 percent of the girth welds will be subjected to non-destructive testing by third party independent inspectors using radiographic or ultrasonic methods.

Depth of Cover

SemCAMS stated that CSA Z662-07 requires a minimum depth of cover for low vapour pressure pipelines of 0.6 metres. The minimum depth of cover of the Redwillow Pipeline will be 1.2 metres, and in some locations such as roads, railroads and watercourse crossings, the specific design requirements of the crossing will dictate the need for a greater depth of cover.

Construction Safety

SemCAMS stated that all contractors will be required to submit construction safety manuals to SemCAMS. In addition, SemCAMS will conduct periodic safety audits to ensure compliance with all government Occupational Health and Safety regulations.

3.3 Pipeline Integrity

3.3.1 Corrosion

SemCAMS submitted that gas received from suppliers will be dehydrated and will meet a water dew point of minus 10 degrees Celsius at the pressure and temperature of the pipeline connection point. Further, the upstream producer facilities will include an electronic continuous water dew point monitor on the gas stream to ensure dehydration. In addition to monitoring by the producers, the output from the continuous water dew point monitor will be connected to the SemCAMS SCADA system for monitoring by the SemCAMS affiliates' control room in Edson, Alberta. SemCAMS submitted that if off-specification gas enters the pipeline, SemCAMS will assess the magnitude of the upset condition and develop a plan to mitigate the impact. That plan will include some or all of the following actions:

- increase the amount of corrosion inhibitor continuously injected into the pipeline;
- insert a pipeline pig[4] and sweep the pipeline free of any liquids; or
- batch treatment of the pipeline with corrosion inhibitor.

As part of the pipeline Integrity Management Program (IMP), SemCAMS submitted that it plans to implement a program of corrosion inhibitor treatments and regular maintenance pipeline pigging. The inhibitor program will consist of both continuous injection and regular batch treatments. SemCAMS will batch the pipeline with inhibitor at start-up and approximately every six months thereafter. The pigging program will initially have pigging occurring weekly and, based on the results of the program and ongoing pipeline operations, a less frequent schedule may be adopted. The minimum frequency will not be reduced to less than approximately once per month. In addition, under the IMP, SemCAMS is planning an initial corrosion inspection program using magnetic flux leakage (an in-line-inspection pig) within the first two years of operation. The follow up inspection frequency will utilize a risk-based approach.

3.3.2 Geotechnical

SemCAMS submitted that approximately 30 percent of the pipeline route would traverse terrain that is steep enough to raise erosion concerns, most of which is located within the Rocky Mountain Foothills region. Preliminary investigations indicate that approximately 22 km of the proposed pipeline route would be on slopes exceeding 15 percent grade, with approximately 10 km of the route being classed as very strong to extreme slopes (greater than 30 percent grade). The Applicant also identified thrust faults at three places in relatively close proximity to the proposed route; however, it stated that the Regional Study Area (RSA) is not considered to be seismically active.

SemCAMS submitted that a geotechnical route evaluation, which focused predominantly on river and major creek crossings, was carried out based on visual reconnaissance and review of aerial photography of the originally proposed route (as-filed route). It further submitted that it has identified three terrain features associated with massive ground movements within the vicinity of the pipeline route and has either proposed a route to avoid the area of concern or, in

4 An in-line pig is any device inserted into a pipeline for the purpose of cleaning and/or inspection.

the case of the upper east valley wall of the Wapiti River, opted to use horizontal directional drilling (HDD) to avoid the terrain instability. The Applicant submitted that massive ground movement events are considered unlikely to affect the integrity of the buried pipeline as mitigative measures, such as trench breakers, subdrains and diversion berms installed on the RoW, would control subsurface and surface water flow and reduce the potential for localized soil movements. The geotechnical assessment for the route was not updated following addition of the Mt. Not. reroute.

In an effort to monitor for terrain instabilities that may occur along the route, the Applicant has committed to conduct regular aerial patrols. SemCAMS submitted that it has retained a geotechnical consulting company to provide pre construction, construction and post construction field assessments and professional advice. On the basis of the information available to it, SemCAMS does not expect to initiate slope stability monitoring but would design a monitoring program, should the requirement be identified during detailed design or construction. SemCAMS stated during the oral hearing that it was unable to identify an inertial geometry in-line inspection (ILI) tool currently capable of operating in its proposed pipeline. SemCAMS also requested that should inertial geometry ILI be feasible on the Redwillow Pipeline, the frequency of inspection would be based on inspection results. SemCAMS submitted that instead of using inertial geometry ILI as part of its IMP, it could infer bending strain on the pipeline based on measurement of ground movement or strain gauges.

3.3.3 Security

SemCAMS submitted that it will develop, implement and maintain a security management program for the Project that will conform to the requirements of the Proposed NEB Regulatory Change 2006-01 (Pipeline Security Management Programs – May 24, 2006).

In a letter of comment, Jim and Margaret Pearson raised concerns about the adequacy of security measures at the aboveground ESD valve sites. In response to the concerns expressed by the Pearsons, SemCAMS submitted that numerous security measures will be in place including: locked fencing at all ESD valve sites; locked buildings within the fenced compound; intruder alarms linked to SemCAMS affiliates' SCADA system; and periodic site visits and reconnaissance. SemCAMS submitted that it has implemented a *Field Facility Security Management Plan* which applies to all facilities operated by SemCAMS or its affiliates, including the Project. SemCAMS further stated that it is in the process of developing a construction security plan, has evaluated the vulnerabilities and security risks associated with the new facilities, and will implement measures to mitigate any additional risks.

Views of the Board

The Board notes that the Project would be designed, constructed and operated in adherence to the most recent regulations, codes and industry standards for sour gas pipelines. The Board also notes that the Project has been designed to operate at 60 percent Specified Minimum Yield Stress (SMYS), and not the allowable 72 percent SMYS set out in CSA Z662-07. This provides an additional factor of safety against potential leaks or ruptures.

The Board is satisfied that SemCAMS has adequately and effectively addressed the issues with respect to sour service welding and inspection. This is in accordance with the Board's expectations that companies incorporate appropriate pipeline welding procedures and engage in rigorous inspections of those welds. The purpose of this is to ensure that the welds and heat affected zones potentially exposed to sour fluids are resistant to all hydrogen induced damage mechanisms, such as sulphide stress cracking. To facilitate the Board's inspection of SemCAMS' construction activities, including field joining, the Board would require SemCAMS to file a construction inspection schedule (Condition 10). The Board also would require SemCAMS to file a construction inspection program pursuant to section 54 of the OPR-99 to ensure the company has a comprehensive inspection program (Condition 10).

With respect to pipeline depth of cover, the Board acknowledges that the proposed 1.2 metres depth of cover for the Redwillow Pipeline exceeds the requirements of CSA Z662-07 and as such provides an additional measure of safety and security from third party damage.

As mentioned earlier, the Board uses a risk-based approach in ensuring that NEB-regulated facilities and activities are safe and secure. In order to facilitate the ongoing review by the NEB of the Applicant's safety plans and performance, the Board would require SemCAMS to submit a construction safety manual (Condition 11) and an operations and maintenance manual (Condition 15). In addition to these conditions, the Board would maintain continued oversight through safety audits and inspections.

The Board recognizes that sour gas corrosion and wet H_2S cracking can be degradation mechanisms in pipelines containing H_2S and water. The Board is of the view that although the pipeline product is stated to be dehydrated, SemCAMS must ensure that the introduction of water into the pipeline from sources such as off-specification gas from the upstream suppliers is addressed and an appropriate mitigation plan developed. As part of its IMP, the Board expects SemCAMS to develop its mitigation program prior to commencing operation of the pipeline. The Board will assess the adequacy and effectiveness of the plan during the Board's compliance oversight activities.

The Board is of the view that the threat of internal corrosion to the Project can be effectively managed by SemCAMS' gas quality monitoring and corrosion mitigation programs of inhibition and pipeline maintenance pigging. The Board is also of the view that SemCAMS' planned pipeline inspection program would be sufficient to monitor the effectiveness of the Applicant's internal corrosion mitigation program. The Board would conduct periodic inspections and compliance verification meetings with SemCAMS during the start-up and ongoing operational phases of the

Project to ensure adequate and effective implementation of these programs.

The Board notes the proposed pipeline would operate in an environment where it could be subjected to extreme loads due to ground movement which could potentially affect the integrity of the pipeline. The Board acknowledges that SemCAMS has undertaken a preliminary geotechnical investigation for the Project; however, based on the Applicant's submissions, this investigation appears to be primarily focused on river and major watercourses. Further, SemCAMS has not investigated the Mt. Not route. The Board recognizes that the geotechnical assessment of the route would be subject to refinement as route selection, design and construction progress and more information becomes available. The Board also recognizes SemCAMS' commitment to conduct pre constructior construction and post construction geotechnical assessments and develop a geotechnical monitoring program based on these assessments. The Board would require SemCAMS to file a Field Geotechnical Assessment of the pipeline route prior to commencing operation, and to provide the Board with assurance that a detailed examination of the final pipeline route had been undertaken and incorporated into the pipeline design and operating strategy (Condition 21). The Field Geotechnical Assessment would incorporate the pre construction and construction assessments, identification of any sites of concern and recommendations for a geotechnical monitoring program. The Board expects that recommendations for geotechnical monitoring be integrated into the Project's IMP.

The Board notes that SemCAMS has not committed to a method of monitoring for pipeline bending strain which could arise from either massive or creeping movement of unstable terrain. The Board is of the view that the methods acknowledged by SemCAMS (inferred measurements from slope inclinometers or discrete strain gauges) are inadequate for identifying new strain features or measuring strain accumulation along an entire pipeline segment. Given the significant consequences of a sour gas release, the Board is of the view that a comprehensive pipeline integrity monitoring program, capable of early detection of pipeline strain accumulation and RoW stability monitoring, is required. The Board would require SemCAMS to conduct a baseline inertial geometry ILI of the Redwillow Pipeline within one year of commencing operation (Condition 22) and re-inspect the Project with subsequent inertial geometry ILI at a frequency of no less than once every five years. (Condition 23) Further, SemCAMS would be required to file a report discussing the findings with the Board within six months of the inspection. The Board is of the view that Conditions 22 and 23 are necessary to demonstrate that SemCAMS is capable of identifying and monitoring the growth of pipeline strain accumulations resulting from ground movement or other environmental loads at any point along the

pipeline. The Board acknowledges and agrees with SemCAMS' request to base the frequency of ongoing inertial ILIs on its inspection results. The Board would be able to adjust the conditioned frequency of inertial geometry ILIs after SemCAMS has demonstrated acceptable performance mitigating accumulated bending strain and managing the integrity of the pipeline.

The Board notes that SemCAMS, in its attempts to identify an inertial geometry ILI tool for the Project, has received a response from only one tool provider. Should SemCAMS, after conducting a thorough assessment of industry capability, be unable to identify a commercial supplier to provide a tool capable of satisfying Conditions 22 and 23, the Board would assess SemCAMS' proposal for an equivalent monitoring strategy through an application for a Certificate Variance.

The Board further notes SemCAMS' commitments in terms of security for the Project and that it would provide continued oversight, including security audits and inspections. The Board is satisfied that the proposed security measures are appropriate.

In summary, the Board is of the view that the transport of sour gas via pipelines can be done safely, provided those pipelines are designed, constructed and operated in accordance with applicable legislation, regulations, codes and standards. The Board notes SemCAMS' commitments to meet or exceed these aforementioned requirements. The Board is satisfied that SemCAMS has adequately addressed the issues with respect to the design, construction and operation of a sour service pipeline. In addition to SemCAMS' operational and safety commitments, the Certificate conditions would further ensure the safe construction and operation of the facilities. While the Applicant has yet to establish a performance record with the NEB, the Board notes SemCAMS' submission that its predecessor and affiliates have significant experience in the operation of sour gas facilities. The Board also notes that adherence to any conditions associated with a possible approval is required, irrespective of any potential new owner or sale of the proposed facilities.

Chapter 4

Emergency Preparedness and Response

As part of its mandate, the Board considers issues related to emergency management in conjunction with facilities applications. The Board's expectations are based on the requirements of the OPR-99 and the *Canadian Standards Association CSA-Z731-03* Emergency Preparedness and Response (CSA-Z731-03).

4.1 SemCAMS' Emergency Preparedness and Response Planning

Before the emergency procedures manual (EPM)[5] for a proposed Project can be developed, the geographical extent of the emergency planning zone[6] (EPZ) must be determined based on H_2S dispersion modeling. Put simply, the quantity of sour gas which could be released in a worst case scenario is used to calculate the EPZ for each segment of pipeline between ESD valves.

To establish its EPZ, SemCAMS used the ERCB H_2S Dispersion Model v.1.15 EPZ. The Applicant also applied H_2S dispersion modeling to determine the appropriate locations along the pipeline for the installation of ESD valves. As a result of its assessment, SemCAMS concluded that 19 ESD valves would be needed to appropriately mitigate risks associated with the Project. Based on the proposed ESD valve configuration, the radius of the EPZ for the Project ranges from approximately 9 km to 22 km (see figure 4-1, Emergency Planning Zone of Redwillow Pipeline Project). The EPZ radius correlates with population density in any given area, with the 9 km range reflecting a more densely populated location along the pipeline.

SemCAMS filed a draft copy of the EPM for the Project on 6 March 2008. SemCAMS anticipated it would finalize its EPM before the proposed pipeline is placed in service and that it will comply with applicable regulatory requirements. Furthermore, SemCAMS agreed to a condition (16) requiring the submission of a final EPM for the approval of the Board 120 days prior to filing its leave to open application. SemCAMS also stated that, while it believes the information submitted to the Board meets the intent of the requirements of CSA-Z731-03, it will conduct a gap analysis of its current emergency management program to ensure that those requirements are met.

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5 In these Reasons for Decision, the term "emergency procedures manual" (EPM) is used in order to be consistent with the requirements of the OPR-99. The use of the term "emergency management program" refers to the expectations of the Board as set out in the Board's 24 April 2002 All Companies letter entitled "*Security and Emergency Preparedness and Response Programs*". The Board notes that throughout the GH-2-2008 proceeding, parties used the term "emergency response plan" in reference to the requirement to file with the Board a copy of an emergency procedures manual for the Project.

6 The emergency planning zone (EPZ) is a geographic area around the pipeline that is used for emergency planning purposes.

Figure 4-1
Emergency Planning Zone of Redwillow Pipeline Project

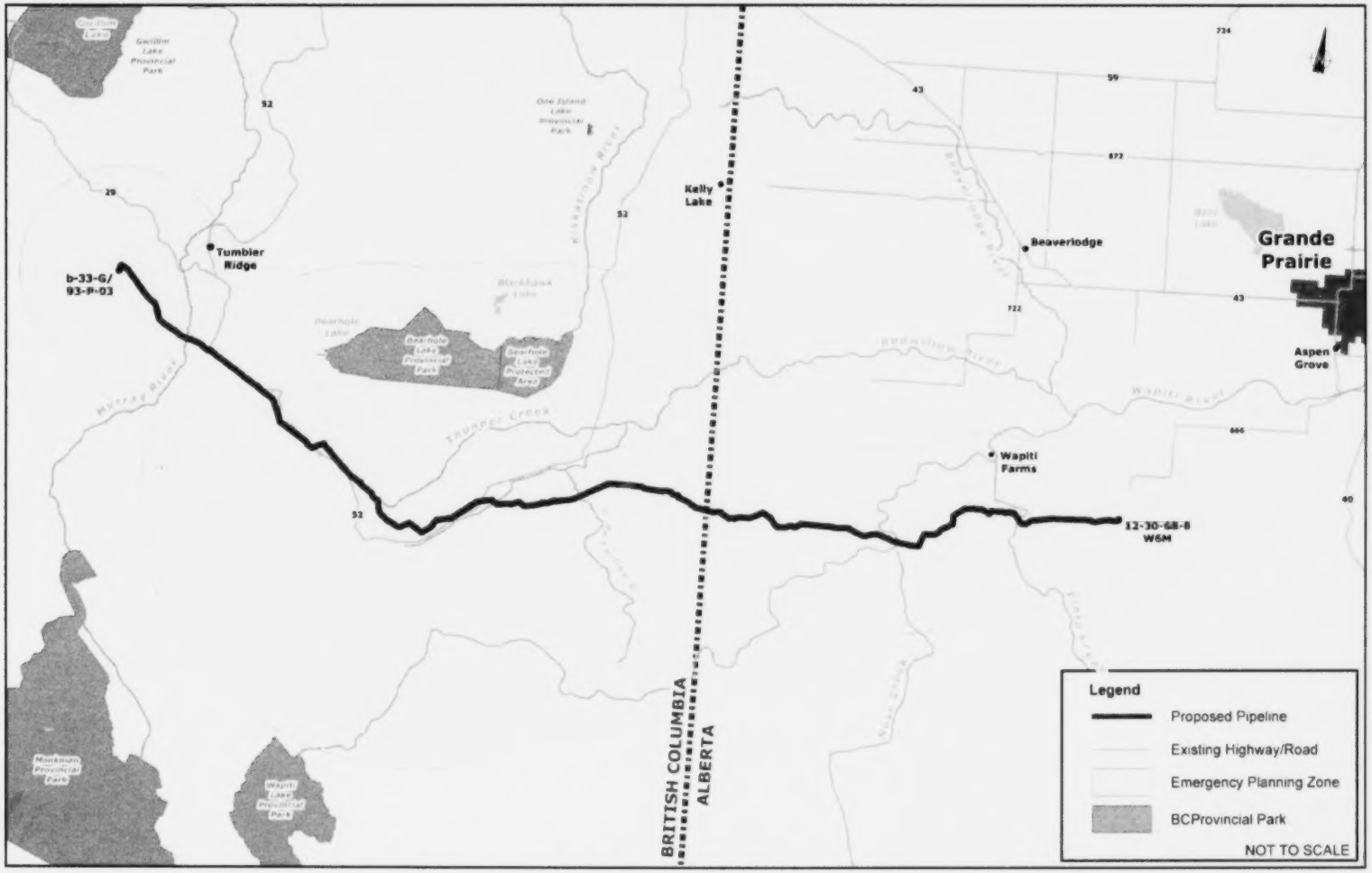
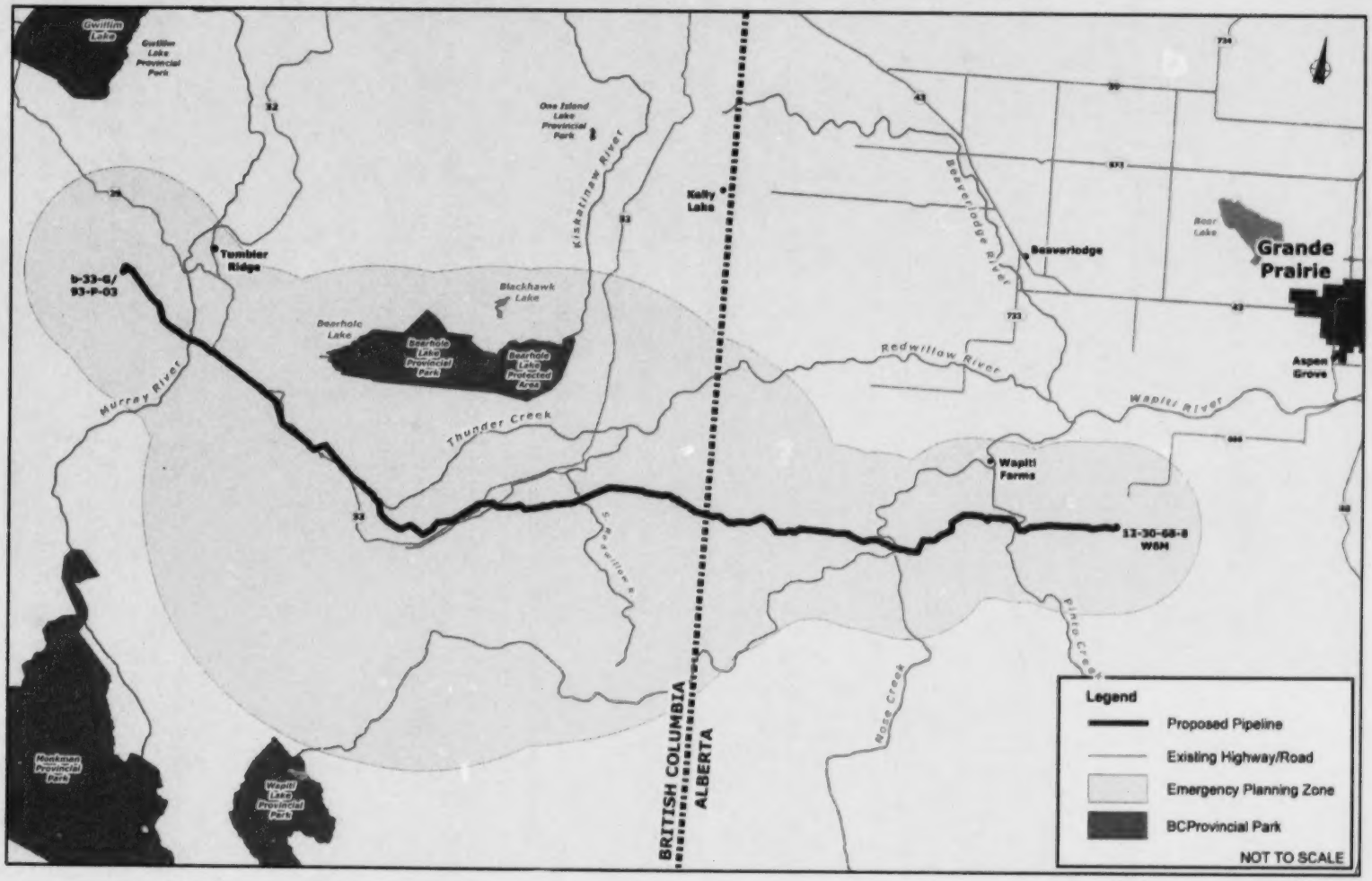


Figure 4-1
Emergency Planning Zone of Redwillow Pipeline Project



SemCAMS filed a Pipeline Leak Scenario Summary that set out the areas potentially impacted by a maximum undetected leak size for each segment of pipeline between ESD valves. The maximum undetected leak size would be the leak size that cannot be detected by the pipeline SCADA system.

SemCAMS submitted that if all appropriate measures to manage pipeline integrity are in place, the likelihood of a pipeline leak is remote. These measures include:

- integrity in design and construction;
- compliance with CSA Z662-07, section 10.14; and
- corrosion monitoring, internal inspection, use of corrosion inhibitors and ongoing pipeline maintenance.

Further, to address the remote possibility of a pipeline leak, the Project will incorporate additional operational measures to ensure that any emergency response is rapid and effective, including:

- effective emergency response planning procedures; and
- maintenance of public awareness programs to ensure that any perceived incident is recognized and reported for action by SemCAMS.

SemCAMS submitted that public awareness programs are an effective means of identifying potential small leaks on pipeline systems which may not otherwise be readily detected through the SCADA system. This does not replace but supplements existing measures to ensure pipeline integrity. SemCAMS also stated that it is unlikely that a leak would persist for very long without being identified by either SemCAMS or members of the public.

4.2 SemCAMS' Consultation on the Emergency Procedures Manual

SemCAMS stated that local authorities and people located within and adjacent to the EPZ have been notified and consulted about the Project, while consultation with absentee residents and landowners is ongoing. SemCAMS has also identified and had discussions with persons who may be living in the area, operating trap lines or potentially using the area for recreational purposes. Also, consultation with residents who have expressed concerns about the Project is continuing. SemCAMS stated that, with respect to its draft EPM, it is engaging in continual consultation to maintain its plans with up to date information on the status of residents.

Views of Intervenors and Response of SemCAMS

In addition to those who appeared at the hearing, expressions of concerns were filed by Kelly Lake Cree First Nation[7], City of Fort St. John, and by Jim and Margaret Pearson relating to public safety and SemCAMS' emergency measures should a pipeline incident result in the release of H_2S.

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7 The Kelly Lake Cree First Nation subsequently withdrew its intervention.

John and Janys Boyte, John and Leslie Jamison and Meghan Jamison

In an oral statement made at the hearing on behalf of Mr. and Ms. John and Janys Boyte and Mr. and Ms. John and Leslie Jamison, Ms. J. Boyte raised a number of concerns regarding the risks of transporting gas containing 30 percent H_2S. She also advised that the Boyte and Jamison families reside within 5.6 km of the proposed pipeline and within the 13.5 kilometre EPZ radius for the Project.

Ms. Boyte stated that both families spend a considerable amount of time outdoors, often out of personal contact with family and away from telephones. Ms. Boyte was concerned that, if under a worst scenario as stated by SemCAMS where a response time could be as long as two hours, H_2S gas could reach the Boytes and Jamisons before they are warned by SemCAMS personnel to leave the area. Ms. Boyte concluded that the SemCAMS EPM is not adequate to protect them. Ms. Boyte expressed further concern that human error and SemCAMS' lack of experience in dealing with emergencies involving residences, could potentially lengthen the identified two-hour response time for contact in the event of an emergency.

Ms. Boyte strongly disagreed with SemCAMS' assertion that its dispersion calculations accurately and properly considered local weather conditions in the Project area. Ms. Boyte suggested that local weather conditions in the Sylvester Creek Valley vary considerably from those occurring in Beaverlodge, Grande Prairie and Elmworth, Alberta. Instead, the valley experiences stable to low wind speed conditions almost half of the time and is subject to periodic atmospheric inversions from late October to early January. She suggested that a pipeline rupture occurring under these conditions could result in channeling of H_2S gas in the Sylvester Creek Valley.

Ms. Boyte proposed that SemCAMS install an additional ESD valve on segment 8 of the pipeline, between ESD valves 7 and 8, in order to reduce the EPZ near the Boyte and Jamison residences, and that residential ambient air monitoring for H_2S be employed for the life of the Project. She also proposed that the sour gas be processed close to its source in BC and transported via pipeline as sweet gas.

Ms. Meghan Jamison also gave an oral statement at the hearing expressing her concerns regarding the safety of the pipeline. She related the occurrence of a sour gas pipeline leak that took place on 19 November 2007 near Beaver Mines, Alberta requiring the evacuation of ten residents and resulting in local residents being sick for a period of days. Ms. Jamison stated that the EPM was incomplete and appeared inadequate. She expressed concern about the possibility of a pipeline leak or rupture and was unaware how residents would be notified in the event of an emergency. She reiterated that her family is often working outdoors on their farm in an area without cellular telephone coverage. In her opinion, there are often air inversion effects in the valley that result in smoke from nearby forest fires collecting there rather than dispersing. In that regard, she is concerned that in the event of a pipeline leak or rupture, the inversion effect would cause gas containing H_2S to collect in the valley.

SemCAMS determined that adding a valve as proposed by Ms. Boyte would not reduce the radius of the EPZ enough to exclude the Boyte property from the EPZ. SemCAMS stated that it

would accept Board direction to conduct further modeling of the scenario the Boytes and Jamisons proposed.

SemCAMS submitted that it had a third party undertake modeling for the Project to evaluate dispersion considering all atmospheric conditions occurring in the pipeline area, including inversion conditions. The modeling was consistent with accepted practices used in the western Canadian sour gas industry, the calculations were accurate and the modeling properly considered local weather conditions in the Project area.

Horse Lake First Nation

The Horse Lake First Nation recommended the Board deny the Project and expressed the concern that SemCAMS had not completely and thoroughly addressed the impacts on public health and safety. The Horse Lake First Nation suggested that there was a lack of information regarding the distance from the proposed pipeline to communities, trappers and residents and therefore, emergency planning for the Project was not complete.

During the hearing, the Horse Lake First Nation questioned SemCAMS' use of the ERCB model for calculating the EPZ, suggesting that an alternate model (Jacques Whitford) was more sophisticated in determining release rates from the pipeline. The Horse Lake First Nation suggested that the alternative is a dynamic model that more appropriately models the entire system of the pipeline, rather than the particular segment in question only, as is the case with the ERCB model.

SemCAMS stated that it would not use the dispersion model proposed by the Horse Lake First Nation over the ERCB model as there would not be significant differences between the two. The ERCB model is recognized by industry and regulators, and updates to the ERCB model are easily incorporated into emergency planning.

District of Chetwynd

Mr. Saugstad, the Mayor of the District of Chetwynd, submitted that the response time to an emergency occurring near Tumbler Ridge, BC would be significantly diminished if SemCAMS based its maintenance crews near that community rather than in Grand Prairie, Alberta. He proposed that the Board should require SemCAMS to locate an emergency maintenance crew within one hour's travel time of Tumbler Ridge, thus providing the community with employment opportunities and enhanced public safety. Mr. Saugstad submitted that the response time to an emergency near Tumbler Ridge would be significantly less than the 90 minutes to two hours response time estimated by SemCAMS, should the maintenance crews be based in Grande Prairie.

SemCAMS stated that it would be inappropriate to condition any Certificate in the manner proposed by Mr. Saugstad. However, as the Board has proposed a condition (Condition 16) requiring SemCAMS to file its EPM for approval well in advance of pipeline operations commencing, the issue of proximity of staff to the pipeline and the ability to respond to emergencies can be addressed at that time.

Additional Comments by SemCAMS

In response to general concerns for public safety expressed by intervenors, SemCAMS provided the following:

- it utilized the latest information from the ERCB Directive 71 dispersion modeling and third party hazard assessment to analyze pipeline segments, ESD valve locations and the resulting EPZ radii;
- it ensures its employees are trained to handle emergency situations and external emergency responders have equipment and training to support SemCAMS in the event of an emergency;
- it will keep the final EPM current through annual maintenance activities and through exercises that would occur from at least annually to every three years;
- it proposes to use an automated dialing and telephone notification system to notify persons residing within the EPZ. If contact cannot be made by telephone, it will conduct personal visits and advise the public of the procedures to follow to protect their safety; and
- it will have in place mutual aid agreements with local emergency service providers, area co-operatives and other area operators for the purpose of responding to an emergency throughout the life of the Project.

Finally, SemCAMS asserted that, based on results from the dispersion modeling, the pipeline design, proposed construction methods, existing SemCAMS affiliates' pipeline integrity programs, planned operations, and its emergency management program, SemCAMS is of the view that it is not exposing the public to any undue risk. Further, while SemCAMS is a newly formed company, SemCAMS affiliates currently own and/or operate over 900 km of pipelines in West Central Alberta as well as plants that process over 565 MMscf/d of sour gas. SemCAMS affiliates' facilities have been in operation for up to 50 years in some cases, and have been modified over the years to accommodate changing regulatory requirements. To date, these facilities have not had an uncontrolled release of sour gas in the course of their operating history.

Views of the Board

In the Board's view, public safety is paramount in the design, construction and operation of the proposed Redwillow pipeline. While the Board finds that a sour gas pipeline such as the one proposed can be built and operated safely, the Board acknowledges that risk cannot be completely eliminated.

It is the Board's view that both the potential for, and consequences of, an incident such as an accidental gas leak can and must be minimized. The Board must be satisfied that adequate precautions and appropriate measures are in place in the unlikely event of an incident. An appropriate EPM ensures adequate emergency procedures for public safety and protection of the environment, in the event of an incident.

The Board notes that SemCAMS submitted a draft EPM which SemCAMS acknowledged is not yet complete. Given that this is a draft EPM, that a number of concerns were raised in the hearing relating to emergency planning, and that additional work is required of the Applicant to finalize its EPM, the Board would direct SemCAMS to file at least 120 days prior to application for leave to open, its final EPM for approval (Condition 16). In addition, the Board would require SemCAMS to file evidence of consultation for development of the final EPM (Condition 17).

The Board would also require SemCAMS to conduct, within one year after commencement of operations, a full scale emergency response exercise to test the relevant components of its EPM and emergency management program (Condition 19) demonstrating its capability to manage the EPZ. In planning for the exercise, SemCAMS shall incorporate the component of response time to individuals into its emergency response exercise scenario. The Board would also require that SemCAMS file with the Board a description of the company's emergency response exercise program within six months after commencement of operation (Condition 20).

Chapter 5

Public Consultation

The Board promotes the undertaking by regulated companies of an appropriate level of public involvement, commensurate with the setting, nature and magnitude of each project. The Board considers public involvement to be a fundamental component during each phase in the lifecycle of a project (i.e. project design, construction, operation and maintenance, and abandonment) in order to assess its potential impacts. This chapter focuses on broader public consultation. Matters relating to Aboriginal consultation are dealt with in Chapter 6, Aboriginal Matters.

5.1 SemCAMS' Public Consultation Program

SemCAMS submitted that its public consultation program was designed to ensure all stakeholders, Aboriginal communities and interest groups had an opportunity to become fully informed about the Project, and that their concerns were identified and considered through effective consultation.

SemCAMS' stated objectives for its public consultation program were to:

- identify all potentially interested parties as early as possible and provide opportunities for consultation at levels appropriate to their interests;
- provide an opportunity for potentially affected parties to become informed about the Project at the earliest possible development phase;
- initiate consultation activities early to enable stakeholder observations and advice to be considered in Project design and routing decisions;
- provide various communication channels to make information available to stakeholders and Aboriginal communities; and,
- notify all potential stakeholders about the Project and their opportunity to participate in a manner appropriate to their needs.

SemCAMS indicated that, through its consultation program, it made the public, industry and area stakeholders aware of the Project and the impact it could have on their communities. It also provided opportunities to engage stakeholders to address their concerns and answer their questions. SemCAMS employed a number of methods to engage stakeholders, including the distribution of Project materials via mail, the development of a Project website, one-on-one meetings, presentations, and community consultation events. Stakeholders and potentially affected groups that were identified for consultation included landowners and occupants, federal and provincial government agencies, non-governmental organizations including environmental non-governmental organizations and recreational clubs, Aboriginal communities, and industry, including sour gas producers and tenure and disposition holders located within the EPZ.

Consultation activities began in May 2007 with the distribution of an early project description to Aboriginal communities, government agencies and industry. A revised project description was distributed to stakeholders in September 2007. Open house events were held in September and October 2007 in the communities of Elmworth, Alberta and Tumbler Ridge, BC. SemCAMS continued consultation activities during the regulatory application process, and committed to being available to meet with stakeholders throughout the course of the Project.

5.1.1 Consultation with Landowners and Residents

SemCAMS indicated that three landowners[8] who reside within the Project EPZ made a number of requests to meet with SemCAMS to discuss the Project. SemCAMS submitted that a meeting was held on 2 October 2008 with these landowners to address outstanding concerns, and to develop a plan for further consultation. SemCAMS indicated that several issues were raised at that meeting, including the ERP for the Project, concerns regarding the notification of landowners in the event of an emergency, and questions regarding the potential obligations of employers operating within the EPZ to provide emergency response information to their employees.

Views of John and Leslie Jamison, and John and Janys Boyte

In an oral statement presented at the hearing, Mr. and Ms. Jamison and Mr. and Ms. Boyte raised concerns regarding SemCAMS' consultation for the Project. Ms. Boyte, on behalf of the Jamisons and the Boytes, indicated that both families had three meetings with SemCAMS to discuss their concerns. She also indicated that, while recognizing SemCAMS' consultation efforts and the information and studies provided to the families on the Project and its potential impacts, both the Boytes and Jamisons had a number of outstanding concerns that had not been mitigated by the meetings or by the information that was provided. The outstanding concerns noted by Ms. Boyte were primarily issues regarding safety and emergency response measures associated with the Project.

A complete discussion of the safety and emergency response concerns raised by the Jamisons and the Boytes is provided in Chapter 3, Facilities.

Views of SemCAMS

In response to the concerns and requests for consultation raised by the aforementioned landowners residing within the EPZ, SemCAMS shared detailed information and committed to provide them with additional information on the following issues:

1. the impact of the Project's Comm-Alert[9] going to a web-based system, and in particular on phone service for the system;
2. gas control protocol for alerting Comm-Alert;
3. consultation with the Monkman Trail Historical Society to verify the trails included in the EPM and to discuss the EPM;

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8 The term 'landowner' refers to an owner of land located within the Emergency Planning Zone (EPZ).

9 Comm-Alert Inc is the on-duty operator of the residence notification system SemCAMS Redwillow is proposing to use.

4. determining and providing information to landowners on how the public might become involved in a field exercise;
5. how the NEB monitors field exercises and audits EPMs;
6. whether SemCAMS would consider providing H_2S awareness training for interested parties;
7. why SemCAMS does not use video monitoring at its ESD valves sites;
8. response times for the Project's Comm-Alert system; and
9. requirements for employers to provide information to their employees who work within an EPZ (including information on matters such as evacuation procedures).

As of 26 January 2009, SemCAMS indicated it had fulfilled all its commitments to the landowners to provide the information items identified above.

In response to the concerns raised at the hearing by the Jamisons and the Boytes and discussed in Chapter 4, SemCAMS indicated that it would accept Board direction to conduct further modeling of the EPZ, and to make technical, health and safety personnel available to meet with the Boytes and Jamisons to discuss the results of further modeling, and to see if mutual understanding on an action plan could be reached.

5.1.2 Consultation with Government Stakeholders

Consultation with regulatory agencies involved in environmental management was initiated by the Applicant on 25 May 2007 when an introductory letter and early Project description were sent to identified government agencies. Consultation with federal, provincial and municipal stakeholders continued throughout the application process.

SemCAMS' record of consultation with Environment Canada in relation to the Mt. Not route was provided at the hearing. While the Applicant had not met with Environment Canada prior to the oral portion of the Hearing, a meeting was scheduled for 18 November 2008. SemCAMS submitted that it foresees further consultation with Environment Canada, including discussing potential post construction monitoring activities.

SemCAMS provided a copy of its consultation plan for the development of the Conceptual Fish Habitat Compensation Plan (CFHCP). In the plan, SemCAMS outlined the criteria for identifying all groups that will be consulted on the development of the CFHCP, and described its planned method of consultation. This would include the formation of multi-disciplinary working groups for the BC and Alberta watercourse crossings that may require consideration of habitat compensation. A target date of 1 March 2009 was set for completing consultation on the CFHCP.

Views of the Board

The Board acknowledges SemCAMS' efforts to identify and consult with potentially affected and interested stakeholders and its commitment to continuing public consultation throughout the life of the Project.

While consultation with Government stakeholders was initiated early in the process, the information provided by the Applicant to the Board about these efforts was not sufficiently detailed. Further consultation with such parties occurred later in the process than is normally desired. As consultation is an important aspect of any project throughout its lifecycle, the Board would expect SemCAMS to continue, and to enhance, its efforts to engage in and maintain effective and timely consultation activities with Government stakeholders, as appropriate, throughout the life of the Project.

With respect to consultation with potentially affected landowners and residents, the Board notes that the concerns expressed were centered on safety and emergency measures, in particular those raised by the Jamisons and the Boytes. The Board recognizes the complexity of information that stakeholders must evaluate when considering the potential effects of a project, including information related to the design of projects and proposed measures to protect the safety of nearby residents and the public. In this regard, the Board acknowledges SemCAMS' willingness to accept Board direction to conduct further modeling of the EPZ, however, based upon the evidence provided by the Applicant, it is unlikely that conducting further modeling in this case would yield materially different results. Even with the addition of an extra ESD valve, the properties of the Boytes and Jamisons would still be included in the EPZ. Consequently, the Board would not require SemCAMS to conduct further modeling in this case for the purposes of determining whether an additional ESD valve is necessary.

The Board recognizes the concerns expressed by the Jamisons and Boytes regarding weather patterns and inversions. As already determined in Chapter 4, the Board would direct SemCAMS to file its EPM for approval prior to leave to open. The Board would expect, in accordance with Conditions 16 and 17, that SemCAMS will demonstrate that its EPM is based on effective consultation that takes into account the views and concerns of stakeholders, including the concerns of the Boytes and Jamisons.

Given the Board's above observations and directions, and SemCAMS' commitment to ongoing consultation throughout the life of the Project, the Board finds that the design and implementation of SemCAMS' public consultation program is appropriate given the setting, nature and magnitude of the Project.

Chapter 6

Aboriginal Matters

The Board takes Aboriginal interests and concerns into consideration before it makes any decision that could have an impact on those interests. In order to ensure that the Board has the necessary evidence before it in this respect, the Board's *Filing Manual* sets out the requisite elements of an application, requires applicants to consult with potentially impacted Aboriginal groups early on in their project planning, and requires that applications include detailed information on any issues or concerns raised by Aboriginal groups or that are otherwise identified by the Applicant.

6.1 SemCAMS' Aboriginal Consultation Program

SemCAMS' three stated goals for its Aboriginal consultation program were to:

- approach each potentially affected Aboriginal community as soon as the Project could be described in sufficient detail to allow communities to consider if and how the Project might impact their interests;
- involve members of Aboriginal communities, who are interested and experienced in conducting environmental field survey work, to assist SemCAMS in collecting the biophysical field data required to develop the Environmental and Socio Economic Assessment (ESA); and,
- undertake or support traditional land use studies with interested Aboriginal communities.

In its Aboriginal Engagement Guidelines and Consultation Protocols, SemCAMS outlined the key principles governing its approach to engagement with Aboriginal peoples for the Project. In its guidelines, SemCAMS committed to: identifying Aboriginal communities that may be affected by the proposed Project at the earliest practicable stage; remaining open to the inclusion of additional Aboriginal communities who may be interested in or impacted by the Project; and identifying a community's preferred method of communication including other matters of protocol. SemCAMS confirmed it would respect those preferences throughout the relationship. SemCAMS also committed to providing necessary information to all communities that may potentially be interested in or impacted by the Project so that they can evaluate and inform SemCAMS of their level of interest in or the impacts of the Project. For those communities that indicated an active interest in the proposed Project, SemCAMS committed to engaging in comprehensive consultations to identify interests, listen to concerns, work with communities to determine appropriate ways to address those concerns, and to incorporate identified solutions into Project planning.

A total of 22 Aboriginal communities were identified as being potentially affected by the Project. Eighteen of these communities were originally identified by SemCAMS, while an additional four communities were identified in May 2008 by Transport Canada (TC) and the Department of Fisheries and Oceans (DFO).

Based on the evidence filed by SemCAMS, the Board prepared the following table summarizing SemCAMS' engagement with identified Aboriginal communities, as well as participation by Aboriginal communities in the Hearing.

Table 6-1
Summary of Engagement and Participation by Aboriginal Communities

Identified Aboriginal Communities	Notified of the Project, offered Consultation	Declared No Active Interest	Participated in TLU Study	Intervened in Proceedings	Withdrew Intervention
Aseniwuche Winewak Nation	•		•		
Blueberry River First Nation*	•				
Doig River First Nation*	•				
Duncan's First Nations	•	•			
Foothills Ojibway Society	•	•			
Fort Nelson First Nation*	•				
Grande Cache Métis Local 1994	•		•		
Grande Prairie Métis Local 1990	•	•			
Halfway River First Nation	•	•			
Horse Lake First Nation	•			•	
Kelly Lake Cree First Nation	•		•	•	•
Kelly Lake First Nation	•		•		
Kelly Lake Métis Settlement Society	•		•		
Lheidli T'enneh Band	•	•			
McLeod Lake Indian Band	•		•		
Northeast Métis Association	•	•			
Nose Creek First Nation	•		•		
Prophet River First Nation*	•				
Residents of Kelly Lake[1]	•		•		
Saulteau First Nations	•		•	•	
Sturgeon Lake Cree Nation	•	•			
West Moberly First Nations[2]	•				

* Four First Nations communities identified by DFO

1 SemCAMS indicated that the Residents of Kelly Lake First Nation included a group of individuals who contacted SemCAMS because they have traditional knowledge about the TLU study area and utilize the area for traditional purposes, but were not specifically associated with the other three Aboriginal communities at Kelly Lake. Therefore, these individuals participated in the TLU study as "Residents of Kelly Lake".

2 The West Moberly First Nation engaged in consultation with the Applicant early in the process, but did not participate in the Applicant's TLU study for the Project, or participate in the Hearing proceedings.

SemCAMS initiated consultation with the 18 Aboriginal communities initially identified in May 2007 via a mailed letter containing an early Project description. SemCAMS sent notification packages to each of the four communities identified by DFO on 16 May 2008.

The Applicant stated that seven Aboriginal communities subsequently confirmed with SemCAMS that they would not maintain an active interest in the Project as it would not impact their traditional territories.

The Applicant continued consulting Aboriginal communities based upon their declared interest in the Project. The Applicant employed a variety of methods to engage Aboriginal communities, and submitted that the occurrence and format of meetings with Aboriginal communities were designed, where possible or noted, in accordance with the wishes and resources of individual communities. Engagement activities included roundtable meetings, information provided by mail and e-mail, open house meetings, as well as discussion and information sharing about the Project undertaken by SemCAMS' environmental consultants (Tera Environmental).

A TLU study was undertaken for the entire proposed Project route. The study was conducted with the involvement of nine Aboriginal communities that expressed an interest in participating in the study (see Table 6-1). The study covered their traditional territories transected by the proposed route.

For those Aboriginal communities who did not participate in the comprehensive TLU study or who had declared they had no active interest in the Project, SemCAMS conducted a variety of ongoing consultation activities. SemCAMS confirmed it has made ongoing efforts to consult with the Horse Lake First Nation since May 2007, and that efforts have included conducting traditional land use interviews in November 2007, as well as extending an offer of funding in March 2008 to the Horse Lake First Nation to carry out its own traditional land use study with the consultant of its choice. SemCAMS also confirmed that the Horse Lake First Nation had committed to provide traditional land use information to SemCAMS by September 2008, but that this information had not yet been received.

The Applicant also confirmed that the Project occurs within the area identified by the West Moberly First Nations as their traditional land use area. SemCAMS began its consultations with West Moberly First Nations in May 2007 and engaged in varying forms of dialogue since that time. Activities included round-table discussions as well as ongoing mail, e-mail and telephone communications. A copy of the Application, ESA and TLU report was provided to the West Moberly First Nations. The Applicant's witnesses testified that SemCAMS received correspondence from Chief Wilson of the West Moberly First Nations on 10 July 2008 requesting time to respond to SemCAMS' application materials and confirm timing for further discussions regarding potential Project impacts. SemCAMS confirmed that as of 10 December 2008, no response to its correspondence had been received from the West Moberly First Nations since 10 July 2008. SemCAMS confirmed that if the West Moberly First Nations subsequently identified any traditional land use interests that are within the Project footprint, it would incorporate any necessary mitigation measures into the Project EPP.

Finally, SemCAMS confirmed that it provided notification packages on 16 May 2008 to the four Aboriginal communities identified by DFO in May 2008. The Applicant submitted that it twice sent correspondence regarding its proposed Project to these communities and that the notification materials included a map, Project overview, general information on the NEB regulatory process, a copy of the amended Hearing Order and an invitation to the Aboriginal communities to engage

in further discussions regarding the Project with the Applicant. SemCAMS confirmed it did not receive a response or indication of interest from any of the four communities.

SemCAMS committed to ongoing consultation with Aboriginal communities throughout the application, construction and operation phases of the Project.

Views of the Horse Lake First Nation

The Horse Lake First Nation raised a number of concerns regarding SemCAMS' consultation activities. The Horse Lake First Nation alleged that SemCAMS' consultation for the Project was inadequate and inappropriate.

In particular, the Horse Lake First Nation indicated that their expectations and requirements for consultation had not been met. Particular areas of concern included consultation with off-reserve First Nation members, the adequacy of information and opportunities for participating in baseline studies, the appropriate conduct of TLU studies, the provision of information regarding employment and business opportunities, and opportunities to review Project information, including ESA studies.

Witnesses for the Horse Lake First Nation testified that they advised SemCAMS of their preferred protocols for consultation activities early on in the process. In order to assist SemCAMS in gathering information about how the proposed Project could impact the community, the Horse Lake First Nation worked with the Applicants' environmental consultant in the creation of traditional land use maps. These maps contained information unique to the Horse Lake First Nation, and were created based upon interviews conducted with elders in November 2007. At some point, the Applicant's consultant inadvertently destroyed the maps. The Horse Lake First Nation advised that the loss of such information represented a significant loss of its cultural heritage, as it represented knowledge held by elders and that some of this information was irreplaceable as some of these elders had subsequently passed away. As a result of the foregoing, the Horse Lake First Nation refused to work further with SemCAMS' environmental consultant, and expressed the view that their relationship with SemCAMS was irreparably damaged. During the proceedings however, Horse Lake First Nation expressed willingness to provide SemCAMS with information on traditional uses and resources if the Horse Lake First Nation's relationship with SemCAMS could be improved, and if it were able to use the consultant of its choice.

Views of SemCAMS

SemCAMS acknowledged that the consultant's unintentional destruction of the traditional land use maps had led to a severance of consultation, and that its relationship with the Horse Lake First Nation was strained. SemCAMS expressed its willingness to continue working with the Horse Lake First Nation. Specifically, it remained committed to completing a TLU study with the Horse Lake First Nation or to receiving information from the First Nation regarding their traditional land use interests, and to discussing mitigation measures. SemCAMS also agreed to work with off-reserve members of the Horse Lake First Nation to address matters related to the Project.

SemCAMS also stated its desire to move its relationship with the Horse Lake First Nation in a more positive direction and sought to understand from the Horse Lake First Nation the best way to do this. The Applicant raised the topic of its comprehensive TLU report with the Horse Lake First Nation and requested a meeting in January 2009 with the First Nation to discuss the TLU report. SemCAMS further reiterated its willingness to accept TLU information from the Horse Lake First Nation and to incorporate, as appropriate, any necessary mitigation measures into the Project EPP. The Applicant submitted that the Horse Lake First Nation had indicated that it preferred to wait until after the Board's decision on the Redwillow application was announced before further contact or discussion took place.

6.2 Aboriginal Engagement by Government Participants

In its letter of comment submitted to the Board, TC indicated that the need for TC approvals under the NEB Act requires TC to consider the environmental effects likely to result from issuing these approvals, including the effects of any change in the environment on the current use of lands and resources for traditional purposes by Aboriginal peoples, as well as potential adverse impacts to potential or established Aboriginal or treaty rights. In order to assess the potential effects of the Project on current traditional activities, TC and DFO contacted Aboriginal communities to obtain this information

As part of its letter of comment submitted to the Board on 15 September 2008, DFO submitted a summary of consultations with 21 potentially affected Aboriginal communities and the Treaty 8 Tribal Association. In its consultation summary, DFO confirmed that concerns were raised with the Department by two Aboriginal communities. DFO indicated that concerns regarding sampling protocols for the ESA and general terrestrial concerns were raised by the Saulteau First Nations. Also, according to DFO, the Saulteau First Nations were uncertain if stream crossing issues were of concern until more details were provided.

Some concerns were also noted for the Prophet River First Nation. The Prophet River First Nation acknowledged that, while the Project is quite a distance from Prophet River, they had a few very general concerns regarding wildlife, riparian zones, fish and stream crossings.

6.3 Hearing Participation by Aboriginal People

Aboriginal people with an interest in the project are invited to participate in the hearing process to make the Board aware of their views and concerns. The Board makes efforts to provide information to Aboriginal people so they can understand how to become involved in the regulatory process. In addition to the information provided to the Board by the Applicant, there are various ways for Aboriginal people to make their views known directly to the Board. This can include a letter of comment, an oral statement, written evidence, oral testimony by elders and members of Aboriginal groups, cross-examination of the applicant and other parties, and final argument.

On 21 and 22 February 2008, the Board hosted procedural workshops in Tumbler Ridge, BC and Grand Prairie, Alberta. The purpose of these workshops was to offer all parties information about Board processes to help them understand how the Board examines applications for pipelines and associated facilities, and how parties can participate in these proceedings. The workshops also provided opportunities for parties to ask procedural questions of Board staff.

Three Aboriginal communities applied to be intervenors in the proceedings. The Saulteau First Nations intervened and registered its appearance at the Hearing. The Kelly Lake Cree First Nation was granted late intervenor status by the Board on 10 September 2008, but subsequently withdrew as an intervenor at the start of the oral portion of the hearing.

The Horse Lake First Nation was granted late intervenor status on 26 August 2008. The Horse Lake First Nation filed evidence in the proceedings and issued information requests to SemCAMS, Environment Canada and DFO. The Horse Lake First Nation also appeared at the oral portion of the hearing, where it presented two witness panels, questioned SemCAMS' witnesses and provided final argument.

No other Aboriginal communities applied to be intervenors in the proceeding, provided letters of comment, made oral statements at the hearing, or otherwise expressed an interest in the Board's proceeding.

6.4 Impacts of the Project on Aboriginal People

As stated in Chapter 1 of these Reasons for Decision, the Board suspended the GH-2-2008 hearing schedule on 20 March 2008 in order to allow the Applicant time to provide the Board and parties with detailed information about Project impacts on potentially affected Aboriginal communities, including potential impacts on traditional land and resource use, and information on the environmental impacts of proposed route changes.

In August 2008, SemCAMS submitted a TLU study undertaken for the entire proposed Project route. The TLU study was conducted with nine Aboriginal communities who expressed an interest in participating in such a study (see Table 6-1). The TLU study covered their traditional territories transected by the proposed Project route.

SemCAMS indicated that the TLU study focused on the Project footprint, as that area directly disturbed by Project construction and cleanup activities. SemCAMS also indicated that where areas of interest away from the Project footprint were identified by Aboriginal communities, these were also investigated as part of the TLU study. A total of 144 traditional land use locations were identified during the study. SemCAMS indicated that 119 of the traditional land use sites were located outside of the Project footprint, and that no concerns or mitigation measures were recommended by participating communities for these locations. A total of 25 traditional land use sites were located within the Project footprint, one of which was identified as a modern habitation site where no mitigation was recommended by Aboriginal communities participating in the study. The remaining 24 traditional land use sites where mitigation was recommended to avoid impacts included:

- 18 trails intersecting the Project footprint;
- five medicinal plant gathering locales; and
- one sacred area (a battleground site).

SemCAMS identified specific mitigation measures for each of the 24 sites identified within the Project footprint in its TLU report. SemCAMS confirmed that the identification of mitigation

measures for the 24 sites was undertaken directly with individuals from participating Aboriginal communities. SemCAMS noted that the recommended mitigation for the identified sacred battleground site would be to construct along the Mt. Not reroute, which would eliminate the need for a proposed temporary access road along the originally proposed route that would irreversibly and adversely impact on the site.

In its TLU report, SemCAMS also described its standard mitigation measures for potential traditional land use sites. SemCAMS indicated its standard mitigation strategies were based on those that have, in the past, been acceptable to Aboriginal communities as a whole, while recognizing that community-driven site-specific mitigation strategies may be requested which differ from the standard mitigation measures described by SemCAMS. SemCAMS also included in its TLU report a Contingency Plan for traditional land use sites discovered during construction, which outlined measures that would be implemented in the event traditional land use sites were identified during construction.

SemCAMS confirmed that each of the participating Aboriginal communities was provided with a copy of the final TLU report and invited to provide comments on it. It also committed to implementing the mitigation requests provided by Aboriginal communities participating in the TLU study for the 24 sites identified in the Project footprint.

Views of the Horse Lake First Nation

Witnesses for the First Nation testified that they began the process of identifying potential Project impacts with SemCAMS in November 2007 by participating in interviews arranged by SemCAMS and mapping traditional land use information in relation to the Project. The Horse Lake First Nation said that this information was lost when the maps prepared in November 2007 were destroyed. Horse Lake First Nation's written evidence suggests that, based on a preliminary review of information on the as-filed Project route, a total of 27 traditional land use sites or areas were identified by them as being potentially affected by the Project. The Horse Lake First Nation completed its own traditional land use assessment for the Mt. Not portion of the route, but did not identify any specific sites of concern within the assessment report.

In addition to concerns regarding potential impacts to traditional resource use, the Horse Lake First Nation raised a number of other concerns regarding the potential impacts of the Project. In particular, they raised concerns regarding opportunities for their participation as traditional environmental monitors during construction and operation of the pipeline, impacts related to increased access to Horse Lake First Nation traditional territories through off-road travel, hunting and recreation, potential impacts to the First Nation's members' traplines, and potential impacts on the health and safety of Horse Lake First Nation members utilizing traditional lands and resources that may result from an accidental rupture or leak. Specific concerns were also raised regarding the effectiveness and appropriateness of SemCAMS' proposals for notification in the event of an emergency, and consultation on emergency response plans for the Project. In particular, the Horse Lake First Nation raised concerns regarding emergency notification of members who do not have telephones, and the conveyance of emergency response information to members who are not fluent English speakers.

Finally, the Horse Lake First Nation indicated its preference to have all of its concerns addressed through the development of a comprehensive impact and benefits agreement.

Views of SemCAMS

SemCAMS confirmed that it met with representatives of the Horse Lake First Nation in November 2007 and March 2008 to discuss traditional use interests. SemCAMS also confirmed that during these meetings it was allowed to view maps prepared by the Horse Lake First Nation Industrial Relations Committee (IRC) indicating the pipeline route in relation to traditional land use information maintained by the Horse Lake First Nation. SemCAMS confirmed that during the March 2008 meeting, it noted 16 traditional use sites that could potentially be impacted by the Project.

In response to the concerns raised by the Horse Lake First Nation, SemCAMS confirmed its willingness to accept any traditional land use information provided by the First Nation and to incorporate, as appropriate, any necessary mitigation measures into the Project EPP. The Applicant also confirmed its commitment to the use of environmental monitors to protect traditional land uses and sites of significance for First Nations, including participation by the Horse Lake First Nation. SemCAMS further confirmed its commitment to developing an Access Management Plan for the Project, and its willingness to receive any specific information from the Horse Lake First Nation to be considered in the plan. Finally, SemCAMS confirmed its willingness to provide culturally appropriate emergency response consultation for Horse Lake First Nation member trappers, to ensure access to the Project RoW for the First Nation member trappers, and to continue to engage in dialogue on the issues and concerns of the Horse Lake First Nation.

Views of the Board

The Board's process is designed to provide it with necessary information about Aboriginal concerns so that it may take these concerns into consideration before it renders a decision. The Board requires applicants to take all reasonable steps to identify and contact Aboriginal people in the area of the proposed project prior to the filing of their applications. This is intended to ensure that potentially affected Aboriginal people have relevant information about the project and can be provided with an opportunity to discuss their concerns and issues with the applicant in the early planning stages of the project. Through these early discussions, an applicant can often fully or partially address the concerns of the Aboriginal people or modify the project in response to such concerns. An applicant is required to file with its application evidence related to its discussions with potentially affected Aboriginal people as well as details of the issues or concerns raised, discussed and, where applicable, resolved. The Board will typically require further information and updates from an applicant. Aboriginal groups with unresolved concerns are encouraged to make their views known to the Board through some form of participation in the hearing. The Board takes all of the evidence about Aboriginal rights

and interests into consideration as part of its assessment of the project impacts and determination of whether the project is in the public interest.

Project proponents bear responsibility for ensuring that potentially affected Aboriginal people are made aware of the project and are given opportunities to discuss their concerns. Aboriginal peoples must be willing to take advantage of opportunities that proponents provide to them in order to learn about the project and express any concerns they might have. If their concerns remain unresolved, they should be prepared to present those concerns to the Board, either in writing, or by appearing at the hearing.

The Board is of the view that all potentially affected Aboriginal communities were provided with sufficient details about the Project, and given the opportunity to make their views known to SemCAMS and the Board in a timely manner so they could be factored into the decision-making process.

A number of Aboriginal communities participated in SemCAMS' TLU study, and the Board is of the view that the study was effective in identifying potential impacts of the Project on their interests. The Board notes SemCAMS' commitment to implement measures to mitigate potential impacts on traditional land use that were developed in consultation with the Aboriginal communities that participated in the TLU study.

For those communities that did not participate in the Applicant's TLU study, the Board finds that SemCAMS provided these communities (the West Moberly First Nations and the four communities identified by DFO) with adequate details about the Project, and with sufficient opportunities to identify, raise and discuss any concerns they may have had about the Project.

With respect to the Applicant's relationship with the Horse Lake First Nation, the Board recognizes that some difficulties have arisen but is encouraged by the offers made by both parties to continue to engage in dialogue on the Project in order to identify specific issues of concern and the implementation of the mitigation measures.

The Board expects SemCAMS to fulfill its commitment to ongoing consultation with all potentially affected Aboriginal communities throughout the life of the Project in such a manner that provides direct and ongoing opportunities for Aboriginal communities to raise and discuss their concerns about the Project. The Board would direct SemCAMS to file, on a monthly basis, reports on consultation activities undertaken for the Project during construction, including a summary of any issues or

concerns raised, and a description of how any concerns or issues were addressed (Condition 14).

The Board further expects SemCAMS, per its commitments, to consider information provided by potentially affected Aboriginal communities regarding potential impacts on current traditional land use resulting from the Project, and to incorporate any appropriate measures for reducing or eliminating any potential impacts into the Project EPP.

The Board also acknowledges SemCAMS' commitment to the use of environmental monitors to protect traditional Aboriginal land uses and sites of significance. The Board would include a condition directing SemCAMS to submit to the Board and all potentially affected Aboriginal groups a plan describing monitoring procedures for the protection of Aboriginal heritage and traditional resources during construction (Condition 8).

All known environmental effects and those socio-economic effects covered by the CEA Act are assessed in the ESR, including effects on current traditional uses by Aboriginal people, wildlife, fish, vegetation and water resources. Project effects raised by the Saulteau First Nations and the Prophet River First Nation, including effects on stream crossings, wildlife, riparian zones and fish are therefore addressed in the ESR. Project effects raised by the Horse Lake First Nation including effects on human health resulting from an accidental pipeline leak or rupture, and access management are similarly addressed in the ESR. A detailed analysis of proposed emergency response and management measures for the Project is presented in Chapter 4.

The Board is of the view that, with the implementation of SemCAMS' environmental protection procedures and mitigation measures, the conditions imposed by the Board, and the commitment by SemCAMS to ongoing dialogue with potentially affected Aboriginal groups, any potential Project impacts on Aboriginal interests are likely to be minimal and will be appropriately mitigated.

Chapter 7

Description of Land Matters

The Board requires applicants to provide a description and rationale for the permanent and temporary lands acquisitions required for a project in order to assess the extent to which new lands may be affected by a project.

The Board also requires a description of the land acquisition process as well as the status of land acquisition activities. This provides the Board with information regarding the company's planned timing of acquisition. Applicants are also required to provide the Board with a copy of the notice provided to landowners pursuant to subsection 87(1) of the NEB Act as well as a copy of the form of the land acquisition agreement.

The Board reviews the adequacy and completeness of an applicant's description and documents associated with land rights, land acquisition and land area. In order to ensure that the Board has the best possible evidence before it in this respect, the Board's *Filing Manual* sets out specific filing requirements as outlined below.

This chapter addresses matters relating to land requirements and land acquisition. The issue of SemCAMS' request for an exemption from the filing of a plan, profile and book of reference is addressed in Chapter 8.

7.1 Land Requirements

The Project is located entirely on BC and Alberta Crown lands. In its application, SemCAMS indicated that in locations where the pipeline parallels existing linear facilities, the new permanent RoW width would be 15 metres and in greenfield areas, a new 18 metre wide RoW would be acquired.

7.2 Land Acquisition Process

In BC, companies that require Crown lands for the purposes of constructing and operating their pipelines need to apply to the Province's Integrated Land Management Bureau. That agency oversees granting interests in land that are either permanent or temporary in nature. The process in Alberta requires applicants to obtain interests in Crown lands from Alberta Sustainable Resource and Development.

SemCAMS submitted that it was in the process of obtaining the necessary land rights from the respective provincial ministries, but at the time of the hearing had not yet obtained these dispositions.

SemCAMS further indicated that its lands acquisition process for the Project will comply with the applicable sections of the Act, including sections 86 and 87.

Views of the Board

The Board finds that SemCAMS' anticipated requirements for land rights are reasonable. The lands rights documentation and acquisition process proposed by SemCAMS are also acceptable to the Board.

Chapter 8

Request for Exemption from Filing of a Plan, Profile and Book of Reference

8.1 Exemption Request

SemCAMS requested, pursuant to section 58 of the NEB Act, relief from the obligation under subsections 31(c) and 31(d) and section 33 of the NEB Act requiring the filing, approval, certification and registration of a Plan, Profile and Book of Reference (PPBoR) prior to commencing construction.

Section 58(1) of the NEB Act states that:

> *The Board may make orders exempting*
>
> *(a) pipelines or branches of or extensions to pipelines, not exceeding in any case forty kilometres in length*
>
> *...from any or all of the provisions of sections 29 to 33 and 47.*

The purpose of a PPBoR is to accurately describe the land areas proposed to be acquired for the detailed route of the certificated pipeline, including a description of the land parcels traversed and the names of the owners and occupiers of these parcels. For all applications subject to sections 31 and 33 of the Act, a PPBoR must be approved by the Board before the company can construct its pipeline. A PPBoR is filed with the Board for its review and approval. The filing of PPBoRs also serves another important function; PPBoRs enable the Board to engage in a process with interested landowners, occupants and the public whose lands may be adversely impacted by the detailed route of the pipeline and/or the methods and timing of construction.

Exemption from sections 31 and 33 of the NEB Act would automatically lead to exemption from sections 34 to 40. Section 34 requires the company to notify all directly affected landowners and the general public of the proposed PPBoR and of the procedures for how an individual may file with the Board a written statement of opposition regarding detailed route location or construction methods or timing. Section 35 directs the Board to hold a public detailed route hearing with respect to any written statement of opposition as deemed appropriate, and section 36 requires the Board to take any detailed route hearing matters into account before approving the PPBoR.

SemCAMS applied for the construction of an approximately 150 km low vapour pressure pipeline. In its original application, SemCAMS indicated that it intended to construct the pipeline in four segments. However, in its letter of 4 September 2008, SemCAMS updated the number of segments to six and further added that in the alternative to granting the exemption for the entire project, SemCAMS requested an exemption for only Segments 1 and 5, as they involve more complex and therefore time-demanding construction.

SemCAMS stated that it should be granted the requested exemption since the PPBoR process is unnecessary in this case. The entire Project is on lands owned by the Crown and consent from the Crown will be in place prior to the start of construction. In support of its exemption request, SemCAMS relied upon its consultation program to advise interested parties and the general public on the Project as well as on matters relating to methods and timing of construction and the proposed detailed route.

Views of the Board

The Board notes that the route for the Project is not yet finalized. Under the detailed route hearing process, parties impacted by the proposed detailed route are afforded the opportunity to comment, not only to SemCAMS but also to the Board, on the methods and timing of construction as well as the proposed route.

Despite the efforts made by SemCAMS to consult with and notify potentially affected parties, it is the Board's responsibility to uphold and ensure compliance with these sections of its Act. The Board supports processes such as the detailed route process, which rely strongly upon public participation. The NEB Act encourages such participation, through coverage of costs for this process. The intent of the legislation is to give greater opportunity, not only to landowners, but to other affected users of the lands in helping shape a project, such that its impacts are minimized and/or addressed and by ensuring that the best possible route is selected. The Board is not persuaded by SemCAMS' assertion that an exemption is warranted since only Crown lands would be impacted by the Project.

Section 58 of the NEB Act states that an exemption may only be granted in relation to pipelines not exceeding 40 km in length. In this case, regardless of how the proposed pipeline is constructed, it would still constitute one pipeline totalling approximately 150 km in length. The segments would be continuous and would be owned and operated by one company. The individual segments in which it may be constructed have no characteristics that would distinguish one segment from another. The Board therefore, denies the relief requested.

Chapter 9

Environment and Socio-Economic Matters

The Board considers environmental and socio-economic matters under both the CEA Act and the NEB Act. The Board expects applicants to identify and consider the effects a project may have on bio-physical and socio-economic elements, the mitigation to reduce those effects, and the significance of any residual effects once the mitigation has been applied.

This chapter provides a description of the EA process used by the NEB for the Project. It also addresses the socio-economic issues that are not evaluated in the ESR.

9.1 Environmental Screening Process

The Project would require a Certificate under section 52 of the NEB Act which triggers the requirement for an EA under the CEA Act. Since the Project would not require more than 75 km of new RoW, as defined in the CEA Act *Comprehensive Study List Regulations*, the Project is subject to a screening level of EA under the CEA Act.

Pursuant to the CEA Act *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* (Federal Coordination Regulations), the NEB coordinated Responsible Authority (RA) involvement in the CEA Act process.

Following the oral portion of the hearing, the Board issued a draft ESR on 30 January 2009 for public review and comment. The Board received comments from TC and DFO, along with a response to those comments from SemCAMS.

The ESR reflects parties' comments and the Board's assessment of the bio-physical and socio-economic effects of the Project and mitigation measures based on the Project description, factors to be considered, and the scope of those factors. The ESR also includes recommendations for conditions to be included in any Board regulatory approvals.

All known environmental and socio-economic effects covered by the CEA Act are assessed in the ESR.

9.2 Socio-Economic Matters

The Board expects companies to identify and consider the impacts a project may have on socio-economic conditions including the mitigation of negative impacts and the enhancement of project benefits.

Potential socio-economic effects covered by the CEA Act are included in the ESR. The CEA Act contemplates indirect socio-economic effects caused by a change to the environment as a result of the Project. Direct socio-economic effects caused by the existence of the Project itself

are assessed under the NEB Act and are discussed below. Other economic effects are addressed in Chapter 2, Economic Feasibility.

9.2.1 Infrastructure

SemCAMS submitted that increased traffic and disruption of traffic movements would occur during construction for the Project along Highway 52. In order to minimize potential effects of the Project on local transportation infrastructure, SemCAMS has developed a Traffic Control Management Plan, which provides guidelines for the management and control of pipeline construction traffic, and addresses traffic management and safety for pre construction, construction and post construction phases of the Project. SemCAMS submitted that the Mt. Not reroute addresses concerns initially expressed by local guide outfitters, trappers and Aboriginal communities regarding increased access to the pipeline corridor from Highway 52, as the proposed Mt. Not. route is further away from the highway.

9.2.2 Services

SemCAMS submitted that the total construction workforce for the Project is expected to be 350 persons, with construction to be undertaken in three spreads. In order to minimize disturbance to local communities and services during construction activities, SemCAMS submitted a Workforce Accommodation Plan for the Project. The Plan indicates that SemCAMS intends to establish a camp near Highway 52 (between KP 60 and KP 70) to accommodate up to 400 construction workers, as well as a 50-person camp near ESD valve site No. 10 (at KP 110), to accommodate most of the workers for Spreads 1 and 2. SemCAMS also indicated that it intends to liaise with local accommodation providers in Tumbler Ridge to secure any supplemental accommodation, if required, for the workforce for Spread 1 and Spread 2. SemCAMS suggested that establishing 450 camp spaces for workers on Spread 1 and Spread 2 would minimize any significant influx of temporary workers into Tumbler Ridge or Beaverlodge.

SemCAMS asserted that workers on Spread 3 are anticipated to be primarily local residents, and that a camp is therefore not proposed for Spread 3 due to its proximity to Grande Prairie and Beaverlodge. Workers for Spread 3 from outside the Project area would be expected to secure their own accommodations in Grande Prairie or Beaverlodge. SemCAMS indicated that it would liaise with local accommodation providers in Beaverlodge and Grande Prairie to secure workforce accommodation for Spread 3, if required. SemCAMS committed to constructing and operating its camp facilities in compliance with all applicable local and provincial legislation and statutes relating to camp facilities.

In order to further minimize disturbance to local communities and services during construction, SemCAMS submitted a Worker Code of Conduct that outlines company expectations for the conduct of Project employees and contractors. SemCAMS committed to making its Code of Conduct available to all workers and to communities and local authorities where workers would be accommodated or where temporary camps would be located.

9.2.3 Employment and Economy

Views of the Peace River Regional District and the District of Chetwynd

Both the District of Chetwynd and the Peace River Regional District raised concerns with respect to potential forgone economic benefits to communities in BC as a result of the Project. In particular, both suggested that sour gas facilities should be built in BC closer to the upstream resource development, rather than having sour gas being transported to Alberta for processing. In their views, local residents and businesses in the region would forego potential business and employment opportunities that could result from the development of sour gas processing facilities in BC. Such business and employment opportunities were suggested to include local and regional contract procurement opportunities, local and regional employment opportunities, and tax revenue to municipalities in BC. Both the Peace River Regional District and the District of Chetwynd submitted economic analysis reports to support their assertions regarding potential local economic benefits that would result from the development of new sour gas processing facilities in the region.

Mr. Saugstad, on behalf of the District of Chetwynd, raised questions regarding the lack of specific commitments made by SemCAMS and the Project's anchor shippers to support or enhance local economies. The District of Chetwynd suggested that while the development of new pipeline facilities can benefit national economies, such developments do not necessarily provide long-term benefits to local economies.

Views of the Horse Lake First Nation

In its written evidence, the Horse Lake First Nation indicated that foremost among its concerns pertaining to the Project was employment, training and business opportunities. The Horse Lake First Nation indicated its preference that these issues be addressed via specific commitments to the Horse Lake First Nation by SemCAMS.

The Horse Lake First Nation further submitted that SemCAMS did not provide a meaningful analysis of the potential economic opportunities associated with the Project that could be accessed by local communities, including the Horse Lake First Nation. In particular, the Horse Lake First Nation stated that the Environmental and Socio-Economic Assessment (ESA) for the Project did not provide specific conclusions regarding the potential economic benefits of the Project for local communities, nor did it propose any concrete measures to enhance that potential.

The Horse Lake First Nation also raised questions during the hearing regarding SemCAMS' commitment to involving the Horse Lake First Nation as a sole source contracting agent in areas related to the clearing, construction, operation, maintenance, reclamation and decommissioning of the pipeline.

Views of SemCAMS

SemCAMS submitted that the Project would result in net positive impacts on employment and the economy. SemCAMS stated that construction of the Project is expected to result in expenditures on goods and services in Canada of approximately $151.2 million, and is estimated to generate increased tax revenues of approximately $17.0 million for the Government of

Canada, $3.9 million for the Government of British Columbia and $3.6 million for the Government of Alberta. The Applicant added that approximately $393,000 would be paid annually through property taxes to municipalities in BC, while approximately $109,000 would be paid annually to municipalities in Alberta. SemCAMS also suggested that labour income from construction would amount to approximately $75.0 million and would create 1,574 direct and indirect person-years of employment.

As part of its Aboriginal Relations Policy, SemCAMS indicated that it would encourage the development of local Aboriginal businesses and workforces by identifying business and employment opportunities throughout the life of the Project, and by providing guidance to Aboriginal communities on how they may participate in competing for such opportunities. SemCAMS also added that it had provided information on its pre-contractor qualification process to potentially affected and interested Aboriginal communities, which outlined the process that the Applicant would use to identify interested and qualified contractors for the Project.

SemCAMS has developed a Procurement Policy for the Project. It submitted that the overall sourcing strategy for the Project would, where appropriate, involve local and Aboriginal businesses in certain aspects of the Project. SemCAMS further stated that local and Aboriginal businesses would compete with all other identified potential suppliers but that, with all else being equal, preference would be given to local and Aboriginal companies participating in the competitive bid process.

In response to the concerns raised by the District of Chetwynd, SemCAMS indicated that the application submitted to the Board assessed the economic benefits and impacts of transporting sour gas from BC to Alberta, and therefore did not consider the potential economic effects of other alternatives, including the construction of new processing facilities in BC. SemCAMS also indicated that the Project would transport a product whose production would be subject to royalty payments to the government of BC. The benefits of the Project would accrue to both BC and Alberta and would therefore provide benefits to all Canadians.

In response to the concerns raised by the Horse Lake First Nation, SemCAMS maintained that it does not plan to sole source any contracting opportunities for the Project. It added that in fact it had designed the construction of the Project in a way that can encourage local and Aboriginal participation in the competitive bid process for construction activities. Furthermore, and in accordance with the measures outlined in its Procurement Policy and Aboriginal Relations Policy, SemCAMS would be taking additional steps to include local and Aboriginal communities in Project construction. In particular, SemCAMS submitted that it has designed construction spreads so that local and Aboriginal groups will be able to be competitive in the bidding process, and has broken out work packages into activities such as cleaning, grading, fencing and access road construction. SemCAMS further restated that all things being equal, local and Aboriginal contractors will be advantaged in the tendering process.

9.3 Description of the Routing

In accordance with the NEB Act, the Applicant submitted a map outlining its proposed pipeline route. In March 2008 SemCAMS filed additional information that identified its intent to adjust a

7.5 km segment of the pipeline in the vicinity of Mt. Not in BC (Mt. Not reroute). The Mt. Not reroute is approximately 1.4 km shorter than the corresponding segment of the original route and minimizes the proximity of the proposed pipeline to Highway 52. SemCAMS submitted that the proposed Mt. Not reroute would require construction through a steep slope, however it considers this route to be less difficult to construct than the original route segment. SemCAMS also identified that the Mt. Not reroute would result in fewer residual environmental and socio-economic effects than the original route alignment. In addition, the reroute is anticipated to reduce the costs of the Project by approximately $ 1.4 million. Further information on the original route and the Mt. Not reroute is detailed in section 9 of the ESR.

Views of the Board

With respect to its regulatory decision under the NEB Act, the Board has considered the ESR and the recommendations included therein.

The Board determined in the ESR that, with the implementation of SemCAMS' environmental protection procedures and mitigation measures and the Board's recommendations, the proposed Project is not likely to cause significant adverse environmental effects. In the event that the Project is approved, the Board would convert the recommendations contained in the ESR, into conditions of its approval.

For details regarding the Board's assessment of the environmental and socio-economic effects evaluated pursuant to the CEA Act, the reader is referred to the ESR, included as Appendix IV of these Reasons for Decision.

With respect to the Applicant's proposed pipeline route, SemCAMS has identified that the Mt. Not reroute would result in fewer residual environmental and socio-economic effects. Consequently, the Board determines that the general route of the pipeline would follow the proposed Mt. Not reroute.

With respect to the potential socio-economic effects of the Project considered under the NEB Act, the Board promotes the identification and consideration, by regulated companies, of the effects of projects on individuals, groups, communities and societies. This consideration includes a project's positive and negative socio-economic impacts and any proposed enhancement and mitigation measures.

The Board notes SemCAMS' submission of plans to address the Project's socio-economic impacts. In particular, the Board notes SemCAMS' submission of a Workforce Accommodation Plan, a Worker Code of Conduct, and the submission of a Traffic Management Plan to address impacts on local communities, infrastructure and services that could result from the Project.

In light of the measures and protocols outlined in the above-noted plans, the Board finds that the Project's impacts on infrastructure and services would be adequately addressed.

The Board recognizes that there are costs and burdens to local communities that result from the development of new pipeline facilities. In order to offset and mitigate such costs and burdens, the Board encourages applicants to ensure meaningful efforts are made to develop and maintain beneficial relations with local communities through project decision-making that is able to realize local economic benefits and enhancements. The Board notes SemCAMS' stated intention to provide, where possible, opportunities for local employment and economic participation in the Project, including opportunities for the Horse Lake First Nation, other potentially affected and interested Aboriginal communities, and local businesses and contractors.

With respect to the issues raised by the District of Chetwynd, the Board is of the view that evidence was not filed indicating that sour gas processing capacity, and its associated employment and economic benefits, would necessarily be developed in BC in the absence of the proposed Redwillow Project.

The Board finds that, with respect to employment and economy, the impacts of the Project have been adequately identified and considered.

Given the above, and the measures and commitments SemCAMS has provided with respect to strategies for employment and procurement for the Project, the Board finds that the proposed Project would provide benefits to local, regional and provincial economies and that any adverse socio-economic impacts of the Project would be adequately addressed.

Chapter 10

Financial Regulation

The Applicant requested an order pursuant to Part IV of the NEB Act designating it as a Group 2 company for the purposes of financial regulation. Pursuant to a Memorandum of Guidance dated 6 December 1995, the tolls of Group 2 companies are regulated on a complaint basis. They are required to maintain separate books of account in Canada in accordance with generally-accepted accounting principles and file annual audited financial statements. They are exempted from the more extensive financial reporting requirements of the *Toll Information Regulations*.

In support of its request, the Applicant contended that it will utilize market-based tolls, has a small number of shippers and simple service offerings and that there is no compelling reason for SemCAMS to provide financial information required for Group 1 pipeline companies.

The Applicant did not seek any other relief under Part IV of the Act. It indicated, however, that a tariff is being prepared and that it would file the tariff well before operation of the Redwillow Pipeline commences.

Views of the Board

Having considered the size of the proposed facilities, the number of third party shippers and the nature of the tolls to be charged, the Board would grant SemCAMS' request to be designated as a Group 2 company for the purposes of financial regulation. SemCAMS would be required to file its tariff with the Board prior to commencement of operation.

Chapter 11

Conclusion on Public Convenience and Necessity

With respect to SemCAMS' application for a Certificate pursuant to section 52 of the NEB Act to construct and operate the Redwillow Pipeline, the Board has carefully considered the evidence and submissions made by all participants to the GH-2-2008 proceeding. The Board has also weighed the totality of benefits and burdens in reaching its determination under Part III of the NEB Act. The Board's conclusions on individual matters which fall within the ambit of section 52 are contained in the preceding chapters.

In summary, the Board is satisfied, based upon all of the evidence presented, that the Redwillow Pipeline and associated facilities are and will be required by the present and future public convenience and necessity and therefore finds that approval of the Project is in the public interest.

Having concluded that the facilities are in the public interest, the Board must also make a determination on SemCAMS' request to be regulated as a Group 2 company for the purposes of Part IV of the NEB Act. The Board finds it appropriate for SemCAMS to be so designated.

In respect of SemCAMS' request for an exemption from sections 31 and 33 pursuant to section 58 of the NEB Act, the Board finds the request is not in the public interest and is therefore denied.

With respect to the Applicant's proposed pipeline route, SemCAMS has identified that the Mt. Not reroute would result in fewer residual environmental and socio-economic effects. Consequently, the Board has determined that the general route of the pipeline shall follow the proposed Mt. Not reroute.

Chapter 12

Disposition

The foregoing constitutes our Reasons for Decision in respect of the application considered by the Board in the GH-2-2008 proceeding.

Having made its determination under the CEA Act, the Board approves SemCAMS' application, pursuant to section 52 of the Act, and recommends to the Governor in Council that a Certificate be issued, subject to the Certificate conditions set out in Appendix III.

G. A. Habib
Presiding Member

K.M. Bateman
Member

D.M. Hamilton
Member

Calgary, Alberta
March 2009

Appendix I

List of Issues

In Hearing Order GH-2-2008 the Board identified but did not limit itself to the following issues for discussion in the proceeding:

1. The need for the proposed facilities having regard to existing processing capacity, gas supply, markets and economic feasibility.
2. The potential environmental and socio-economic effects of the proposed facilities, including those factors outlined in subsection 16(1) of the *Canadian Environmental Assessment Act*.
3. The appropriateness of the general route of the pipeline.
4. The suitability of the design, construction and operation of the proposed facilities, including but not limited to safety and integrity.
5. The impacts of the project on Aboriginal People.
6. The terms and conditions to be included in any approval that the Board may issue.

Appendix II

List of Undertakings

No.	Description	Requested By	Date of Request	Given By	Response Received & Exhibit No.	Paragraph No.
U-1	For SemCAMS to provide its record of consultation with Environment Canada in relation to the Mount Not route	NEB	29-Oct-08	SemCAMS	31 October 2008 B-59	1656
U-2	For SemCAMS to file the results of discussions with Environment Canada regarding Letter of Comment submitted to the Board	NEB	29-Oct-08	SemCAMS	01 December 2008 B-63	1664
U-3	SemCAMS will provide an update to the Board on the progress of its efforts to consult with West Moberly First Nations	NEB	30-Oct-08	SemCAMS	10 December 2008 B-64	2526
U-4	Within 30 to 60 days, SemCAMS undertakes to provide an update to the Board on the progress of its efforts with West Moberly First Nations	NEB	30-Oct-08	SemCAMS	10 December 2008 B-64	2539
U-5	With respect to the Horse Lake First Nation, SemCAMS undertakes to provide an update to the Board on the progress of its efforts to consult with Horse Lake First Nation	NEB	30-Oct-08	SemCAMS	10 December 2008 B-64	2573
U-6	Within 30 to 60 days, SemCAMS undertakes to provide an update to the Board on the progress of its efforts Horse Lake First Nation	NEB	30-Oct-08	SemCAMS	10 December 2008 B-64	2612

No.	Description	Requested By	Date of Request	Given By	Response Received & Exhibit No.	Paragraph No.
U-7	Under advisement, for Mr. Jeffrey to address the matter in final argument on the matter of the willingness of SemCAMS to consult with all potentially affected Aboriginal groups to ensure that any concerns or interests regarding its traditional use activities beyond the project footprint have been identified	NEB	30-Oct-08	SemCAMS	31 October 2008 B-60	2612
U-8	With respect to the other four First Nations, who were identified later on in the process, provide them with a copy of SemCAMS' traditional land use study and to further consult with them	NEB	30-Oct-08	SemCAMS	12 January 2009 B-67	2660
U-9	To provide the Board with an update on these consultations within 60-90 days	NEB	30-Oct-08	SemCAMS	12 January 2009 B-67	2674
U-10	For SemCAMS to provide to the Board by the 15th of November 2008 a copy of the consultation plan for the conceptual fish habitat compensation plan	NEB	30-Oct-08	SemCAMS	14 November 2008 B-61	3507
U-11	To review Exhibits B-2e and B-5d and identify if there are any omissions or any entries that Ms. Yeager disagrees with	SemCAMS	30-Oct-08	Danielle Yeager - Horse Lake First Nation	26 January 2009 C-12-17	3507

Appendix III

Certificate Conditions

Adherence to these conditions is required of the Certificate holder, irrespective of any potential new owner or sale of the proposed facilities.

For the purposes of all of the conditions, "commencement of construction" includes the clearing of vegetation, ground-breaking and other forms of RoW preparation that may have an effect on the environment, but does not include activities associated with normal surveying operations.

General Conditions

1) SemCAMS shall comply with all of the conditions contained in this Certificate unless the Board directs otherwise.

2) SemCAMS shall cause the Project to be designed, located, constructed, installed and operated in accordance with the specifications, standards and other information referred to in its application or as otherwise agreed to during questioning or in its related submissions.

3) SemCAMS shall implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations and procedures for the protection of the environment included in or referred to in its application or as otherwise agreed to during questioning or in its related submissions.

Prior to Construction (including clearing or ground-breaking activities)

4) **Commitments**

SemCAMS shall:

a) file, at least 90 days before the planned commencement of construction, a table listing all commitments made by SemCAMS during the proceedings, commitments made through information requests, conditions imposed by the Board and the deadlines (if applicable) associated with each, excluding all environmental commitments contained within the Environmental Protection Plan; and

b) update the status of the commitments on a monthly basis and file the updates with the Board.

5) **Environmental Protection Plan (EPP)**

SemCAMS shall file with the Board, for approval, at least 60 days prior to the planned commencement of construction, an updated project specific EPP, which SemCAMS shall implement, once approved. The EPP shall describe, but is not limited to, the following elements:

a) all environmental and socio-economic protection procedures, mitigation and monitoring commitments, as set out in SemCAMS' application or as otherwise agreed to during questioning or in its related submissions; and

b) updated alignment sheets.

6) Project Financing

a) SemCAMS shall file with the Board, at least 90 days before the planned commencement of construction, a report on project financing for the Redwillow Pipeline demonstrating to the satisfaction of the Board that adequate financial resources have been secured to complete and bring into commercial operation the Redwillow Pipeline. The report shall contain detailed descriptions of the financing arrangements entered into, with the amounts, terms and conditions attributable to the financing of the Redwillow Pipeline separately identified. The report shall also include a copy of the executed agreement or agreements between SemCAMS (or its affiliate) and the party or parties providing the project financing; and

b) If the Monitor (currently Ernst & Young Inc.) has not by then been discharged, SemCAMS shall file with the Board, at least 90 days before the planned commencement of construction, a letter from Ernst & Young Inc., in its capacity as court-appointed monitor of proceedings involving SemCAMS under the *Companies' Creditors Arrangement Act*, R.S.C, 1985, c. C-36, indicating that, in its opinion, adequate project financing for the Redwillow Pipeline has been secured, allowing successful completion of construction of the Redwillow Pipeline based on SemCAMS' projected costs of such construction.

Heritage Resources

7) Archaeological and Heritage Resources

SemCAMS shall file with the Board, at least 60 days prior to the planned commencement of construction activities:

a) copies of correspondence from the BC Archaeology Branch and from Alberta Department of Culture and Community Spirit confirming that SemCAMS has obtained all archaeological and heritage resource permits and clearances; and

b) a statement on how SemCAMS intends to implement any recommendations contained in (a).

8) Aboriginal Heritage and Traditional Resource Monitoring Plan

SemCAMS shall submit to the Board and potentially affected Aboriginal groups, at least 60 days prior to the planned commencement of construction activities, a plan describing monitoring procedures for the protection of Aboriginal heritage and traditional resources during construction. The plan shall include, at a minimum:

a) a list of those potentially affected Aboriginal groups who agree to participate as monitors during construction; and

b) a description of the scope and methodology and justification for monitoring activities to be undertaken by SemCAMS and each participating Aboriginal group, including those elements of construction that will involve Aboriginal Monitors from potentially affected Aboriginal communities.

9) Provincial Permits and Approvals

SemCAMS shall file with the Board, at least 30 days prior to the planned commencement of construction activities, copies of all required permits and approvals issued by the British Columbia Ministry of Forests and Range, the Integrated Land Management Bureau and the Ministry of Environment, including any conditions, terms or requirements.

10) Construction Inspection Program

SemCAMS shall file with the Board at least 14 days prior to the planned commencement of construction, a construction inspection program, including an inspection schedule. The program shall include:

a) a preliminary list of the number and type of each inspection position, including job descriptions, qualifications, roles, responsibilities, and decision-making authority; and

b) the reporting structure of personnel responsible for inspection of the various pipeline construction activities, including environment and safety.

11) Construction Manuals

SemCAMS shall file with the Board the following programs and manuals within the time specified.

a) Construction safety manual 14 days prior to the planned start of construction;

b) Field joining program 14 days prior to joining; and,

c) Field pressure testing program 14 days prior to pressure test. The program shall include specific mitigation measures that SemCAMS intends to use for hydrostatic testing.

12) Construction Schedule

SemCAMS shall, at least 30 days prior to the planned start of construction, file with the Board a detailed construction schedule or schedules identifying major construction activities and shall notify the Board of any modifications to the schedule or schedules as they occur.

During Construction

13) Construction Reporting

a) SemCAMS shall file with the Board, on a monthly basis until construction is completed, construction progress reports. The report shall include information on the activities carried out during the reporting period, any environmental and safety issues and non-compliances, and the measures undertaken for the resolution of each issue and non-compliance.

b) SemCAMS shall file with the Board, on a monthly basis until construction is completed, reports summarizing monitoring activities for archaeological,

paleontological, traditional land use and heritage resources. The reports shall include, at a minimum:

i) a summary of monitoring activities carried out;

ii) a description of any issues or events related to the discovery of archaeological, paleontological, traditional land use and heritage resources; and

iii) the measures undertaken in response to issues or events related to the discovery of archaeological, paleontological, traditional land use and heritage resources.

14) Consultation During Construction Activities

SemCAMS shall file with the Board, on a monthly basis, reports on consultation activities undertaken for the Project during construction, including a summary of any issues or concerns raised and a description of how any concerns or issues were addressed.

15) Operations and Maintenance Manual

SemCAMS shall file with the Board an Operations and Maintenance Manual 14 days prior to operations.

16) Emergency Procedures Manual (Emergency Response Plan)

SemCAMS shall file with the Board for approval, at least 120 days prior to any submission of the Leave to Open application, 3 copies of its final Emergency Procedures Manual (EPM) for the Project and shall file with the Board any modifications to the plan as they occur. In preparing its EPM, SemCAMS shall refer to the Board's *Onshore Pipelines Regulations, 1999* and the corresponding Guidance Notes.

17) Emergency Procedures Manual Consultation Summary

SemCAMS shall file with the Board, at least 120 days prior to any submission of the Leave to Open application, evidence of consultation conducted for the development of the final Emergency Procedures Manual Plan. The report shall include:

a) a description of the SemCAMS' consultation program, addressing how SemCAMS identified the parties with whom it would consult, the methods and activities SemCAMS used to notify and consult with those parties, and copies of the materials or information regarding the Emergency Procedures Manual that were used for consultation;

b) a description of any comments and concerns raised during consultations; and

c) evidence demonstrating how the Emergency Procedures Manual addresses, to the extent possible, issues raised during consultation.

18) Pressure Test Reporting

Upon commencing hydrostatic pressure testing of the Redwillow Pipeline per SemCAMS' Application and in accordance with Clause 8 of CSA Z662-07, SemCAMS shall document the *results of each pressure* test performed, which shall be submitted to the Board in the form of a report in conjunction with its Leave to Open application. If an unsuccessful test occurs at any stage during pressure testing, SemCAMS shall notify the Board within 24 hours of the occurrence.

Post Construction

19) Emergency Response Exercise

a) Within 1 year after commencement of operation of the Project, SemCAMS shall conduct a full-scale emergency response exercise with the objectives of testing:

- emergency response procedures;
- training of company personnel;
- communications systems;
- coordination of emergency response activities with first responders and mutual aid partners;
- response equipment;
- safety procedures; and
- effectiveness of its liaison and continuing education programs.

b) SemCAMS shall notify the Board, at least 30 days prior to the date of the emergency response exercise, of the following:

- the date and location(s) of the exercise;
- the participants in the exercise; and
- the scenario for the exercise.

c) SemCAMS shall file with the Board, within 60 days after the emergency response exercise outlined in (a), a report on the exercise including:

- the results of the exercise;
- areas for improvement; and
- steps to be taken to correct deficiencies.

20) Emergency Response Exercise Program

a) Within 6 months after commencement of operation of the Project, SemCAMS shall file with the Board a description of the company's emergency response exercise program for 5 years post construction, including:

- the frequency and type of exercises (full-scale, table-top, drill) it plans to conduct; and
- how the results of any emergency response exercises will be integrated into the company's training and exercise programs.

b) SemCAMS shall notify the Board, at least 30 days prior to the date of an emergency response exercise, of the following:

- the date and location(s) of the exercise;
- the participants in the exercise; and
- the scenario for the exercise.

21) Field Geotechnical Assessment

SemCAMS shall file with the Board within 60 days of commencing operation a Field Geotechnical Assessment, completed by a registered professional engineer, describing the following:

- results of pre-construction slope stability assessments along the final pipeline route;
- results of terrain stability assessments conducted during pipeline construction;
- identification of any pipeline integrity or terrain stability related sites of concern, including a listing of slopes exceeding 15 percent grade, the length and grade of the slope, and erosion or stabilization measures implemented at the site; and
- a geotechnical monitoring program for the pipeline including a summary of proposed inspection methods, field instrumentation, inspection frequency and intervention thresholds for ground movement.

22) Baseline In-Line Inspection

SemCAMS shall conduct an inertial geometry in-line inspection of the pipeline within 1 year of commencing operation. Within 6 months of the baseline inspection, SemCAMS shall file a report summarizing the findings of the baseline inspection and identify the following:

- bending strain capacity of the pipeline materials as constructed; and
- SemCAMS' intervention threshold for pipeline deformation and cumulative or incremental bending strain.

23) In-Line Inspection Program

SemCAMS shall conduct an inertial geometry in-line inspection of the pipeline at a frequency no less than once in every five years. SemCAMS shall file with the Board within 6 months of each in-line inspection a summary report of the inspection findings including:

- updates on all pipeline integrity or terrain stability related sites of concern;
- the location and magnitude of cumulative differential bending strain and pipe deformation as compared to the baseline inspection;
- identification and timing of proposed follow up inspections and supplemental monitoring activities; and
- a description and timing of proposed intervention activities.

24) Post Construction Environmental Monitoring Report

On or before the 31 of January of each of years 1, 2 and 5 after the approved Project is placed in service, SemCAMS shall file with the Board, and make available on its website for informational purposes, a post construction environmental report. This report shall address, but not be limited to, issues pertaining to the reclamation of native vegetation, plant species of special concern, weeds, water course crossings, wetland functions, and shall:

a) identify on a map or diagram the location of any environmental issues which arose during construction;

b) discuss the effectiveness of the mitigation applied during construction and the methodology used to assess the effectiveness of mitigation;

c) identify the current status of the issues identified (including those raised by landowners and Aboriginal groups), and whether those issues are resolved or unresolved; and

d) provide measures and timelines SemCAMS shall implement to consider and respond to unresolved concerns.

25) Condition Compliance Report

No later than 30 days after the approved Project is placed in service, SemCAMS shall file with the Board a confirmation, by an officer of the company, that the approved Project was completed and constructed in compliance with all applicable conditions in this Certificate. If compliance with any of these conditions cannot be confirmed, the officer of the company shall file with the Board details as to why compliance cannot be confirmed. The filing required by this condition shall include a statement confirming that the signatory to the filing is an officer of the company.

26) Certificate Expiry

Unless the Board otherwise directs prior to 31 December 2010 this Certificate shall expire on 31 December 2010 unless construction in respect of the Project has commenced by that date.

Appendix IV

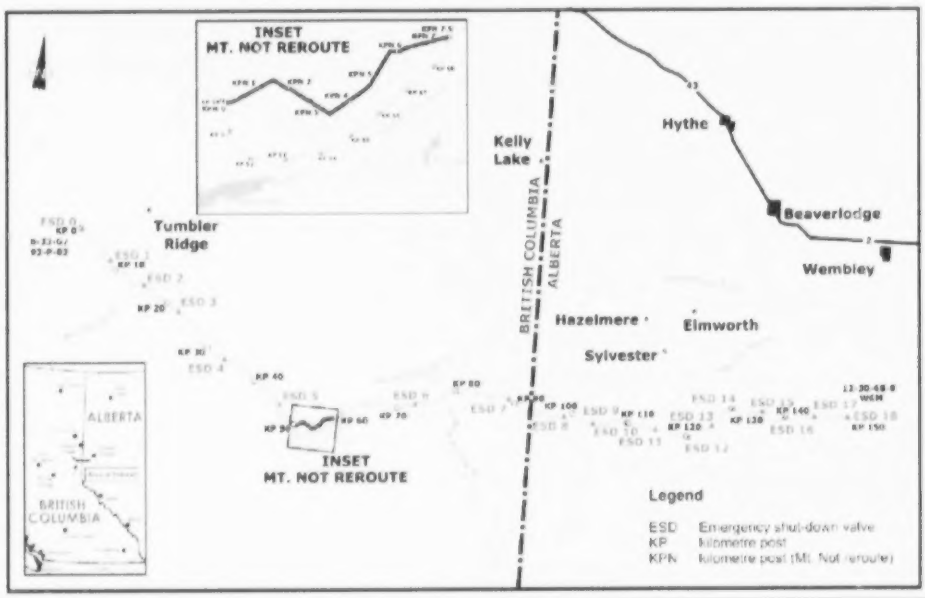
Environmental Screening Report

National Energy Board | Office national de l'énergie

ENVIRONMENTAL SCREENING REPORT
Pursuant to the *Canadian Environmental Assessment Act* (CEA Act)

Redwillow Pipeline Project

Applicant Name:	SemCAMS Redwillow ULC (SemCAMS)		
Submission of Preliminary Information Package:	17 June 2007	**CEA Act Registration Date:**	8 August 2007
Application Date:	7 December 2007		
National Energy Board (NEB or Board) File Number:	OF-Fac-Gas-S393-2007-01 01	**CEA Registry Number:**	07-01-32421
CEA Act Law List Trigger:	*National Energy Board Act*, subsection 58(1)	**CEA Act Determination Date:**	13 March 2009



Canada

SCREENING SUMMARY

On the 7 December 2007, SemCAMS Redwillow ULC (SemCAMS) applied to the National Energy Board (Board or NEB) for an authorization to construct and operate the Redwillow Pipeline Project (the Project), that would transport dehydrated sour gas from the Grizzly Valley area southwest of Tumbler Ridge, British Columbia (BC) to an area southwest of Grande Prairie, Alberta.

The Project would include the construction of approximately 150 km of 323.9 mm OD (NPS 12) pipeline, approximately 19 emergency shut down (ESD) valve stations, a pig launching assembly, radio towers and buildings associated with the Supervisory Control and Data Acquisition (SCADA) monitoring system. The buried pipeline would gather approximately 1 983 $10^3m^3/d$ of dehydrated sour natural gas containing up to 30 percent hydrogen sulphide and 15 percent carbon dioxide.

The NEB is the Federal Environmental Assessment Coordinator for the Project. Fisheries and Oceans Canada and Transport Canada have declared themselves as Responsible Authorities, and Environment Canada declared itself as a Federal Authority in possession of specialist advice.

The analysis for the Environmental Screening Report (ESR) is based on SemCAMS' application, responses to information requests, preliminary Environmental Protection Plan, letters of comment and evidence submitted during the public hearing process. The ESR identified a number of potential adverse environmental effects that could result in relation to the proposed Project. The main concern raised by the public related to the possible health effects associated with the potential release of sour gas due to a leak or rupture.

The NEB has considered information provided by SemCAMS, government departments, Aboriginal groups and the public during its review of the Project and is of the view that, with the implementation of SemCAMS' environmental protection procedures and mitigation measures, and the NEB's recommendations, the Project is not likely to cause significant adverse environmental effects.

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LIST OF ABBREVIATIONS

AENV	Alberta Environment
Applicant	SemCAMS Redwillow ULC (SemCAMS)
As-filed route	Pipeline route originally proposed by the Applicant
ASRD	Alberta Sustainable Resource Development
BC	British Columbia
BC MOE	British Columbia Ministry of the Environment
Board or NEB	National Energy Board
CEA Act	*Canadian Environmental Assessment Act*
CO_2	carbon dioxide
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSA	Canadian Standards Association
CSA-Z662-07	*Canadian Standards Association Z662-07*, Oil and Gas Pipeline Systems
DFO	Fisheries and Oceans Canada
EA	environmental assessment
EC	Environment Canada
EPP	Environmental Protection Plan
EPZ	Emergency Planning Zone
ERCB	Alberta Energy Resources Conservation Board
ERP	Emergency Response Plan
ESA	environmental and socio-economic assessment
ESD	emergency shut-down
ESR	environmental screening report
FA	Federal Authorities
FCN Letter	Federal Coordination Notification Letter
FEAC	Federal Environmental Assessment Coordinator
Footprint	Footprint Study Area
ha	hectare

HADD	Harmful alteration, disruption or destruction
H_2S	hydrogen sulphide
HDD	horizontal directional drill
HRIA	Heritage Resource Impact Assessment
km	kilometre
KP	kilometre post
KPN	kilometre post (Mt. Not reroute)
LSA	Local Study Area
LSD	Legal Subdivision
m	metre
Mt. Not	Mount Notogosengunwatchi
NEB Act	*National Energy Board Act*
NPS	Nominal Pipe Size (in inches)
NWPA	*Navigable Waters Protection Act*
OD	Outside Diameter
OPR-99	*Onshore Pipeline Regulations, 1999*
PCMP	Post Construction Monitoring Program
Project	Redwillow Pipeline Project
RA	Responsible Authority
RoW	right of way
RSA	Regional Study Area
SARA	*Species at Risk Act*
SCADA	Supervisory Control and Data Acquisition
Scope of the EA	the scope of the environmental assessment of the Redwillow Pipeline Project
SemCAMS or the Applicant	SemCAMS Redwillow ULC
SFN	Saulteau First Nations
TC	Transport Canada
TLU	Traditional Land Use

1.0 INTRODUCTION

1.1 Project Overview

SemCAMS Redwillow ULC (SemCAMS or the Applicant) is proposing to construct and operate a 150 km buried pipeline and ancillary facilities to gather dehydrated sour gas from the Grizzly Valley area 9 km southwest of Tumbler Ridge, BC, into an existing provincially regulated gathering and processing facility near Grovedale, Alberta (the Project).

Approximately 93 km of the 150 km pipeline would be in BC and 57 km in Alberta. The pipeline route traverses provincial Crown land for its entirety, and would follow existing linear disturbances for approximately 81 km and along new right of way (RoW) for approximately 69 km.

Section 5.0 provides further details regarding the work and activities associated with the Project.

1.2 Information Sources Used in this Environmental Screening Report

This Environmental Screening Report (ESR) is based on information from the following sources:

- Project application, including the Environmental and Socio-Economic Assessment (ESA) filed in December 2007;
- additional written evidence, including the Mount Notogosegunwatchi (Mt. Not) Reroute ESA filed in August 2008;
- supplementary filings to the Project application;
- responses to information requests;
- submissions from the public, Aboriginal groups, interested parties and Federal Departments; and
- evidence submitted at the public oral hearing.

Filed information pertaining to the Project application can be found within "Regulatory Documents" on the National Energy Board (NEB or Board) website (www.neb-one.gc.ca). For more details on how to obtain documents, please contact the Secretary of the Board at the address specified in Section 11.0 of this ESR.

2.0 RATIONALE FOR THE PROJECT

According to the Applicant, current infrastructure in northeastern BC provides gas producers with direct access to western markets while the proposed Project could open up eastern markets to producers. Therefore, the Project would provide producers with a cost effective solution to further develop gas reserves in northeastern BC by connecting producers to existing available licensed sour gas processing capacity in Alberta.

3.0 ENVIRONMENTAL ASSESSMENT PROCESS

The application for the Project was filed pursuant to subsection 52 of the *National Energy Board Act* (NEB Act) which triggers the *Canadian Environmental Assessment Act* (CEA Act) *Law List Regulations* thereby requiring the preparation of this ESR. The Project was subjected to a screening level environmental assessment (EA) pursuant to the CEA Act, as the proposed works would not require more than 75 km of new RoW, as defined in the CEA Act *Comprehensive Study List Regulations*. For details regarding the land disposition adjacent to the pipeline route, the reader should refer to the application and supporting documentation.

SemCAMS established the following spatial boundaries that were used to determine and assess the study area:

- The Footprint Study Area (Footprint) encompasses the area directly disturbed by the Project construction and clean-up activities, including associated physical work and activities;
- The Local Study Area (LSA) varies as it is based on the zone of influence within which plants, animals and humans are most likely to be affected by the construction and operation phases of the Project. For biophysical elements and resource use related to socio-economic elements, the LSA is defined by SemCAMS as a 2-km wide band centered over the proposed pipeline RoW; and
- The Regional Study Area (RSA) is defined as the area including and extending beyond the LSA for social elements. The boundary varies and is generally defined by the Emergency Planning Zone (EPZ) boundary. For biophysical elements the RSA is defined as a 30 km wide band centered over the proposed pipeline RoW.

3.1 Government Participation

The NEB is the Federal Environmental Assessment Coordinator (FEAC) for this Project. Upon receipt of a Preliminary Information Package in July 2007, the NEB as the FEAC issued a federal coordination notification letter pursuant to *the Regulation Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements*, to identify potential involvement of federal departments in the EA process. Provincial agencies in Alberta and BC were notified of the proposal.

Fisheries and Oceans Canada (DFO), and Transport Canada (TC) are Responsible Authorities for the Project, and Environment Canada (EC) is in possession of specialist advice.

4.0 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

The scope of the environmental assessment (Scope of the EA) includes the scope of the Project, factors to be considered in the EA and the scope of those factors. The final Scope of the EA, as determined in consultation with the federal authorities and the public, is included in Appendix 1 of this ESR.

In February 2008, the NEB prepared a draft Scope of the EA and then solicited comments on it from federal and provincial agencies as well as from the general public. The Scope of the EA was amended in March 2008, to reflect the consideration of available community and Aboriginal traditional knowledge as applicable, as part of the factors to be considered within the EA. In October of 2008, the Scope of the EA was further amended to consider the supplemental information received from the Applicant in August 2008, which included the proposed 7.5 km route realignment in the vicinity of Mt. Not.

5.0 DESCRIPTION OF THE PROJECT

SemCAMS' application identifies the pipeline route with kilometre posts (KP); the original pipeline route (as-filed route) extends from KP 0.0 at b-33-G/93-P-03 in BC to KP 149.7 at Legal Subdivision (LSD) 12-30-68-8 W6M in Alberta.

In March 2008 SemCAMS filed additional information that identified its intent to adjust a 7.5 km segment of the pipeline in the vicinity of Mt. Not. The reroute begins to deviate from the as-filed route at KP 50.1 and terminates at KP 59.0. The Mt. Not reroute is approximately 1.4 km shorter than the corresponding segment of the original route. Further, the reroute would only require 1.1 km of new RoW as opposed to 3.5 km that was required for the as-filed segment.

Physical Work and/or Activity
Construction Phase – Construction is proposed to commence in Fall 2009, pending regulatory approvals.
▪ Construction of approximately 150 km of 323.9 mm outside diameter (OD) (NPS 12) pipeline, to gather approximately 1 983 $10^3m^3/d$ (70 MMscf/d) of dehydrated sour natural gas containing up to 30 percent hydrogen sulphide (H_2S) and 15 percent carbon dioxide (CO_2). ▪ The full capacity of the pipeline facility under the proposed configuration would be up to 2 295 $10^3m^3/d$ (79 MMscf/d). ▪ Approximately 93 km would be in BC and 57 km in Alberta. The proposed pipeline route traverses provincial Crown land for its entirety. ▪ The width of the proposed permanent RoW would be generally 18 m where the proposed route does not follow existing RoWs. The proposed pipeline RoW width would be decreased to 15 m where the route parallels an existing pipeline RoW and 3 m of shared work space is anticipated. ▪ Additional temporary workspaces would be required at selected locations to accommodate construction activities (e.g. road, rail and watercourse crossings, sharp side bends, steep hills, etc.). Ancillary facilities and activities associated with the Project would include: ▪ Site preparation (surveying, clearing, grubbing, top soil stripping and salvage, stockpiling, grading, watercourse crossing and trenching); ▪ A pig launching assembly; ▪ Approximately 19 emergency shut-down (ESD) valve stations and associated buildings; ▪ Radio towers and buildings associated with the Supervisory Control and Data Acquisition (SCADA) monitoring system; ▪ Interconnections with producer pipelines (upstream) and the existing processing facilities; ▪ Upgrading of existing roads as access roads, construction of new access roads; ▪ Crossing of various roads and railways along the RoW, as well as foreign pipelines and utility lines;

Physical Work and/or Activity
▪ Crossing of numerous watercourses (approximately 60, some navigable) using various techniques: isolated, open cut, trenchless (e.g. punch and bore, horizontal directional drill), and temporary bridges may be installed for vehicle access, in accordance with applicable regulations; ▪ Hydrostatic testing using either water or water/methanol mix. Water would be drawn from suitable sources and returned to the appropriate watershed in accordance with permit requirements. Water/methanol mixes and methanol would be recovered and returned to the supplier or disposed in accordance with appropriate regulations; ▪ Other required temporary facilities including equipment storage, pipe stockpile sites, borrow pits and office sites; and ▪ Clean-up and reclamation.
Operation Phase – Timeframe: To be determined
▪ In service inspections, including internal inspection and monitoring of the pipeline. ▪ Implementation of a post construction monitoring program (PCMP), line patrols, reseeding and reclamation if warranted, and vegetation management. ▪ Operational maintenance and equipment/vehicle operations. ▪ Maintenance of access roads and infrastructure.
Abandonment Phase – Timeframe: At the end of the service life of the Project
▪ Any environmental effects associated with the abandonment phase are likely to be similar to those caused by the construction phase. An application pursuant to paragraph 74(1)(d) of the NEB Act would be required for its abandonment, at which time the environmental effects would be assessed by the NEB.

6.0 DESCRIPTION OF THE ENVIRONMENT

Physical Environment

The segment of the route in BC traverses the Rocky Mountain Foothills. In Alberta, the proposed route traverses the Southern Alberta Upland Physiographic region of the Interior Plains.

The Foothills are characterized by moderate to steep-sided, bedrock-controlled ridges, while terrain within the Plateau and Plains areas is typically gently sloping to undulating.

The soil along the proposed pipeline route is susceptible to compaction and rutting and approximately 18 percent of the proposed route is susceptible to trench instability as a result of the presence of coarse textured soils.

Topography along the Mt. Not reroute is undulating to strongly rolling and traverses the Northern and Central Plateaus and Mountains physiographic region.

The proposed pipeline route crosses 60 named and unnamed watercourses and drainages, with an additional 10 watercourses being identified along the proposed new access routes.

Wetlands

The proposed pipeline route traverses approximately 28 km of wetland environment, comprising approximately 18.5 percent of the proposed pipeline route. Peatlands comprise approximately 27 km of the wetlands, while less than 500 m of wetland habitat was classified as being mineral.

An additional 3.4 km of wetland environment would be encountered along the proposed access road alignments.

A rare, spring fed calcareous fen community, as identified in accordance with the BC wetland classification system, is located on the south boundary of the as-filed route at KP 58.8. The Mt. Not reroute is located further from the rare calcareous fen and associated spring than the as-filed route, and would avoid direct impact to the fen.

There are no Ramsar Wetlands of International Importance within the study area in BC or Alberta. Further, the proposed Project would not encounter any Important Bird Areas, Migratory Bird Sanctuaries or Ducks Unlimited projects associated with Wetlands.

Four wetlands were identified as having fish and fish habitat potential.

Fish and Fish Habitat

There are seven species of sportfish and 12 species of non-sportfish that are expected to occur in the local study area of the proposed pipeline.

The watercourses crossed in BC are part of the Murray River and Wapiti River sub-basins.

- The Murray River sub-basin provides important habitat for several native coldwater sportfish species including bull trout, Arctic grayling, mountain whitefish and burbot. Northern pike and a variety of non-sportfish species such as suckers, cyprinids and sculpins can be found in the tributaries to the Murray River.

The watercourses crossed in Alberta are tributaries to Pinto Creek and the Wapiti River.

- Most of the fish species that are encountered in the Murray River sub-basin are also expected to occur in the Wapiti River sub-basin, as similar habitats are encountered in both sub-basins.

Many of the smaller tributaries crossed by the proposed route may be frozen to the bottom or reduced to negligible flows during the winter.

The Mt. Not reroute would cross three non-fish bearing watercourses and the associated as-filed route crosses one fish-bearing unnamed tributary to the Redwillow River.

Vegetation

Varying forest types encountered along the pipeline route include mixed coniferous forest, mixed wood forest, upland forest, black spruce dominated forest, tamarack dominated forest and trembling aspen dominated forest. Peatlands, wetlands and riparian areas are also encountered along the proposed route.

Ninety-five rare plant populations of 18 species and five occurrences of rare or special ecological communities were identified to occur within the footprint of the Project.

A calcareous fen was observed at KP 58.8 on the south boundary of the as-filed route. Alkalinity and calcium loving mosses (e.g, Scorpidium species) and arrow-grasses were recorded at this site.

Fourteen weed species were observed along the proposed pipeline route in 2007 and 2008. Most weed species noted were agronomic species, including some that may have been used intentionally for reclamation of disturbed sites in the past.

A total of 62.5 ha of old growth forest is within the footprint of the Project and would be cleared.

The Mt. Not reroute would require the clearing of approximately 3.3 ha of old growth forest and the associated as-filed route would require the clearing of 4.6 ha.

Wildlife and Wildlife Habitat

The proposed route in Alberta traverses the Clairmount Plain, Wapiti Plain, Cutbank Benchland, the northern portion of the Kakwa Benchland and the lower boundary of the Beaverlodge Plain migratory bird habitat subregions. The Beaverlodge Plain and the Clairmount Plain subregions were identified as being of national importance for the Trumpeter swan, while the Wapiti Plain is of regional importance for the swan. The Beaverlodge Plain subregion is a regional priority for migratory habitat due to its importance for staging of ducks, geese and colonial waterbird species. No priority migratory bird habitat was found in the BC portion of the route.

SemCAMS identified the area as having limited habitat capabilities to produce waterfowl. The limitations for waterfowl nesting are generally associated with the adverse topography, deep or shallow water, fast or excessive water flow, lack of flowing water, lack of marshes or basins and poor nutrient quality in soils and water.

The proposed pipeline route traverses the provincially important Wapiti River Environmentally Significant Area from KP 114.1 to KP 119.5. The Wapiti River Environmentally Significant Area is one of the more diverse and productive river valleys in the Central Mixedwood and Lower Foothills subregions of Alberta, with important ungulate winter ranges and movement corridors for moose and elk. The river banks provide habitat for such species as garter snakes. This area has a high diversity of birds, including hummingbirds and warblers.

Pinto Creek Elk Range Environmentally Significant Area is provincially important and is traversed by the proposed pipeline route from KP 136.1 to 139.3. The area is one of only a few important grizzly bear ranges in the Central Mixedwood subregion of Alberta. It is also an important movement corridor for ungulates, including elk.

The proposed pipeline route traverses three identified ungulate winter ranges associated with Calahoo Creek, the Wapiti River and Pinto Creek in Alberta.

In Alberta, the Northwest Woodland Caribou Winter Range Environmentally Significant Area is located approximately 2 km south of the proposed pipeline. This area provides important grizzly bear, moose, elk, mule deer and white-tailed deer habitat, including migration corridors.

In BC, the proposed pipeline route traverses approximately 57.5 km of the provincially identified low elevation winter range for woodland caribou (KP 35.2 to KP 92.7). Both the proposed Mt. Not reroute and associated as-filed route would be located within the caribou winter range in BC.

Species at Risk as listed on Schedule 1 of the Species at Risk Act (SARA)

Lands within the vicinity of the proposed route may provide habitat for two SARA Schedule 1 species: woodland caribou and western toad.

Species of Special Concern

Five wildlife species listed through the Committee on the Status of Endangered Wildlife in Canada were identified: grizzly bear; wolverine; woodland caribou; rusty blackbird and western toad.

In BC, species of particular conservation concern are Red and Blue-listed species. Red-listed species with potential to occur in the LSA are woodland caribou, bay-breasted warbler, Cape May warbler and Connecticut warbler. Blue listed species with potential to occur in the LSA are fisher, grizzly bear, wolverine, northern long-eared bat, southern red-backed vole, black-throated green warbler, broad-winged hawk, Canada warbler, great blue heron, Le Conte's sparrow, northern hawk owl, rusty blackbird, sandhill crane, bull trout and pearl dace.

In Alberta, species with particular conservation concern (S1 and S2 ranked) include woodland caribou, hoary bat, northern long-eared bat, black-backed woodpecker, Cape May warbler and hooded merganser. Arctic grayling, bull trout and largescale suckers are considered sensitive species. Further, the *Alberta Wildlife Act* identifies the grizzly bear (threatened), woodland caribou (threatened), black throated green warbler, Cape May warbler, trumpeter swan, white-winged scoter and long-toed salamander.

Air Quality

Existing noise and air emissions along the proposed route are primarily caused by anthropogenic sources, including vehicle and rail traffic and industrial activities.

Human Occupancy and Resource Use

The Project footprint is located entirely on BC and Alberta Crown land and is within Treaty 8 Territory.

In Alberta, 387 residences were identified as being within the EPZ, which includes the Wapiti farms Corporation (approximately 65 residences). In BC, the town of Tumbler Ridge (1 388 residences), as well as an additional 11 residences, were identified within the EPZ. Two industrial camps and 14 cabins (some of which may have been abandoned) were also identified within the EPZ.

SemCAMS identified a total of 22 Aboriginal communities in Alberta and BC that may be potentially affected by the Project.

The Project is located within the Peace River Regional District in BC, and within the County of Grande Prairie No. 1 and the Municipal District of Greenview No. 16 in Alberta. Agriculture, tourism, oil and gas activities, forestry and mineral extraction are the dominant industrial activities in these regions.

Outfitting, trapping and recreational activities are known to occur within the RSA along the entire pipeline route. In Alberta, SemCAMS identified one Forest Grazing License area and seven registered trapping areas that will be traversed by the proposed route. In BC, there are six registered trapping areas that will be traversed by the proposed route.

The proposed Project does not traverse lands under Parks Canada jurisdiction, reserve lands or Métis Settlements. The proposed route will cross part of the provincially designated Murray River North Scenic Area in BC between approximately KP 11.7 and KP 14.2.

Highway 52 (Heritage Highway) has been identified as a scenic corridor by the Government of BC. The proposed as-filed pipeline route would be within 500 m of the highway for approximately 0.25 km. The proposed route would also traverse an unnamed scenic area that is located north of Stony Lake, BC.

The Mt. Not reroute is aligned further from the highway and would reduce the visual concerns raised for the as-filed route.

The Mt. Not reroute is located within the boundaries of one outfitting area. No additional outfitters or outfitting areas were identified in the vicinity of the reroute compared to the as-filed route. The reroute would increase the distance of the proposed pipeline to the affected outfitter's camp.

Traditional Land Use

The proposed Project is located entirely on Crown lands and within the Treaty No. 8 area. A Traditional Land Use (TLU) study was conducted for the entire proposed Project route with the participation of the Aseniwuche Winewak Nation, Grande Cache Métis Local 1994, Kelly Lake Cree First Nation, Kelly Lake First Nation, Kelly Lake Métis Settlement Society, McLeod Lake Indian Band, Nose Creek Community, Residents of Kelly Lake, and the Saulteau First Nations. A total of 25 traditional land use sites were identified within the Project footprint. The identified sites included a sacred area (a battleground site) along a segment of the as-filed route, west of the Redwillow River crossing.

Archaeological, Paleontological and Heritage Resources

An Archaeological Impact Assessment was conducted along the entire proposed route in BC, including the Mt. Not reroute and proposed access roads. No previously-recorded archaeological sites were encountered and no new archaeological sites were identified within the Project footprint. For the Alberta portion of the proposed route, a Historical Resources Overview was prepared for the entire Alberta portion of the route, and three areas identified as having high potential for intact cultural materials were the subject of a Historical Resources Impact Assessment. No new or previously recorded archaeological sites were identified within the Alberta portion of the footprint.

The proposed route will traverse the potentially fossil-bearing Dunvegan Formation between KP 0 and KP 1.6, and will traverse bedrock along the Mt. Not reroute between KPN 0 and KPN 3 that may include potentially fossil-bearing formations (including the Kaskapau and Puswaskau formations). In addition, proposed contingency watercourse crossing methods may

cross potentially fossil-bearing formations at the Wapiti River Crossing and the Pinto Creek Crossing.

7.0 COMMENTS FROM THE PUBLIC

7.1 Project-Related Issues Raised

During the preparation of its application and throughout the application process, SemCAMS conducted consultation with a number of sources including the general public, Aboriginal groups, and federal, provincial and local government agencies. This information, in combination with comments received throughout the NEB process, contributed to the identification of potential adverse environmental effects, issues of concern and the development of mitigation measures. These effects have been outlined below and categorized by the environmental element and by the source. The information and concerns raised have been incorporated within Section 9.0 of this ESR.

Environmental Element of Interest	Interested Party		
	Government Agencies (Federal, Provincial, Regional, Local)	Public (Individuals, Landowner Associations, Conservation Groups)	Aboriginal Groups
Soil and Soil Productivity	•	•	•
Water Quantity and Quality	•	•	•
Air Quality	•	•	•
Vegetation	•	•	•
Wetlands	•	•	•
Fish and Fish Habitat	•		•
Wildlife and Wildlife Habitat	•	•	•
Species at Risk	•	•	•
Human Occupancy and Resource Use	•	•	•
Heritage Resources	•	•	•
Current Traditional Land and Resource Use	•		•
Human Health	•	•	•
Accidents and Malfunctions	•	•	•
Routing	•	•	•
Cumulative Effects	•	•	•

7.2 Comments Received by the NEB on the Draft Environmental Screening Report

Following the release of the draft ESR, a number of comments were received from TC, DFO and SemCAMS. These comments can be viewed on the NEB website, through the Regulatory Document Index.

Appendix 2 provides a summary of these comments, some of which resulted in wording changes to the ESR. Explanations have been included for the comments that did not result in a change to the ESR.

The Board has also made some wording changes within the ESR for clarity and consistency.

8.0 THE NEB'S ENVIRONMENTAL ASSESSMENT METHODOLOGY

The NEB used an issue-based approach to assess the environmental effects of the Project. The EA included the consideration of alternative pipeline routing in Section 9.1 and in its analysis within Section 9.2, the NEB identified interactions expected to occur between the proposed Project activities and the surrounding environmental elements. Also included were the consideration of potential accidents and malfunctions that may occur due to the Project, and any change to the Project that may be caused by the environment. If there were no expected element/Project interactions, then no further examination was deemed necessary. Similarly, no further examination was deemed necessary for interactions that would result in positive or neutral potential effects. In circumstances where the potential effect was unknown, it was categorized as a potential adverse environmental effect.

Section 9.3.1 provides an analysis for all potential adverse environmental effects that are normally resolved through the use of standard design or mitigation measures. In Section 9.3.2, the Board has identified certain potential adverse environmental effects for detailed analysis based on public concern, the use of non-standard design or mitigation measures, or the relative importance of the elements in question in the context of this application.

Section 9.4 provides discussion on cumulative effects, while Section 9.5 addresses inspection and monitoring. Section 9.6 addresses follow-up programs and Section 9.7 lists recommendations for any subsequent regulatory approval of the Project.

9.0 ENVIRONMENTAL EFFECTS ANALYSIS

9.1 Pipeline Routing

Major Route Selection

Routing of the as-filed pipeline was influenced by SemCAMS' desire to minimize the amount of new land disturbance and avoid any areas of high environmental sensitivity. The pipeline would transport gas that contains up to 30 percent H_2S, therefore weighted consideration was given to select a route that maximized the setback of the pipeline from existing dwellings and public facilities. The route evaluation process resulted in the development of two route alternatives: the Northern Route and the Heritage Route.

The Northern Route heads east from the source point and runs north of Bearhole Lake Park, continues east across the BC/Alberta border, then southeast through the communities of Mount Valley and Elmworth and further southeast where it would tie into the existing valve station.

The Heritage Route heads southeast intersecting with Highway 52, moves east across the BC/Alberta border and continues across the Wapiti River and Pinto Creek valleys where it would tie into the existing valve station.

SemCAMS selected the Heritage Route as its preferred route as it provided a better fit with the selection criteria described in Section 3.0 of the ESA submitted as part of the application. This route is approximately 10 km shorter than the Northern Route. This route also allows more of the pipeline to be constructed adjacent to existing linear disturbances and would result in fewer residences being within 500 m of the pipeline.

Mount Notogosegunwatchi Route Realignment

Subsequent to the filing of its application, SemCAMS proposed a 7.5 km route realignment in the vicinity of Mt. Not in BC. The entire 7.5 km reroute is located between ESD valves 5 and 6. The Mt. Not reroute is approximately 1.4 km shorter than the as-filed route and minimizes the proximity to Highway 52. The Mt. Not reroute also avoids a sacred area identified through the TLU studies conducted by SemCAMS. The traditional land use assessment determined that construction of a short segment of the as-filed route west of the Redwillow River crossing would have a significant residual impact on a sacred battleground area. The sacred area could be avoided if the Mt. Not reroute is constructed and the A98 access road is not utilized.

Existing temporary access roads were selected to facilitate construction along the Mt. Not reroute where feasible, as several existing roads access the reroute near KPN 1.5 and KPN 2.0 (A89 and A 91), KPN 6.5 (A96a) and KPN 7.4 (A98). A new 1.1 km temporary access road near KPN 3.4 (A93) would be constructed to follow an existing seismic line.

Other Realignments

Subsequent to filing the application, SemCAMS proposed 28 route modifications, a contingency crossing at the Wapiti River and an alternative horizontal directional drill (HDD) reroute at Pinto Creek. The route modifications are within the LSA and deviate no more than 360 m from the as-filed pipeline route.

Views of the Board

The Board is of the view that the route and access road selection criteria applied by SemCAMS are appropriate and the preferred route has been selected with a view to minimizing potential adverse effects on people, minimizing engineering and construction issues and paralleling existing RoWs to the extent possible. Further, environmental considerations were taken into account by SemCAMS when it selected its preferred route.

The Board notes that the preferred pipeline route, as identified by SemCAMS, includes the as-filed route from KP 0.0 to 50.1 and KP 59.0 to KP 149.7, the Mt. Not reroute from KPN 0.0 to 7.5 and the route modifications, which is collectively referred to as the Redwillow Pipeline. Should the Project be approved, any further deviations, modifications, changes or alterations to the applied-for route would require NEB approval and may require approvals from other federal or provincial authorities, such as the *Navigable Waters Protection Act* (NWPA).

9.2 Project - Environment Interactions

Environmental Element	Project Interaction? Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effect	Mitigation Discussed in: 9.3.1	Mitigation Discussed in: 9.3.2
Bio-Physical						
Terrain Stability	Y	• Site preparation (e.g. clearing, grading), excavation and backfilling along the RoW	Adv	• Terrain instability	X	
Bedrock	Y	• Excavation and backfilling along RoW and ESD valve sites	Adv	• Re-contouring to preconstruction profile may not be feasible	X	
Soil and Soil Productivity	Y	• Site preparation, excavation and backfilling along the RoW, SCADA towers and ESD valve sites • Use of construction equipment and vehicles	Adv	• Reduced soil productivity as a result of topsoil/subsoil mixing • Surface erosion until revegetation • Difficulty revegetating some disturbed soils with high water or wind erosion potential • Loss of strippings through trench instability • Compaction and rutting of topsoil or upper subsoil in root zone	X X X X X	

Vegetation and Forest Health	Y	• Site preparation (clearing grubbing, topsoil stripping, grading)
		• Construction of temporary and permanent ancillary structures and facilities
		• Pipeline installation
		  ▪ Excavation/ trenching
		  ▪ Installation of watercourse crossings
		• Operational activities (vegetation control along pipeline RoW)
		• Disturbance of rare plants
			Adv	• Loss or alteration of native vegetation, rare plants and rare ecological communities
				• Loss of vegetation important to wildlife
				• Introduction of weeds
				• Loss of salvageable timber
				• Loss of old growth forest
				• Accelerated spread of forest pathogens
				• Potential loss or alteration from spills
					X
					X
					X
					X
					X
					X
					X	

Legend: Y (Yes); N (No); U (Uncertain); P (Positive); Ntl (Neutral); Adv (Adverse)

Environmental Element	Project Interaction? Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effect	Mitigation Discussed in: 9.3.1	Mitigation Discussed in: 9.3.2

Water Quality and Quantity	Y	▪ Site preparation (clearing grubbing, topsoil stripping, grading)
		▪ Construction of temporary and permanent access roads, ancillary structures and facilities
		▪ Blasting activities
		▪ Pipeline installation
		  ▪ Excavation/trenching
		  ▪ Installation of watercourse crossings
		  ▪ Backfilling or armoring trench
		  ▪ Hydrostatic testing
		▪ Operation and maintenance activities
			Adv	▪ Reduction of natural surface water flow patterns
				▪ Reduction in surface water quality due to suspended solids in the event of a contingency (trenched) crossing
				▪ Disruption of groundwater quality and quantity
				▪ Disruption of streamflow (temporarily or reduced or lost flows)
				▪ Reduction in surface water quality
				▪ Introduction of deleterious substances
					X
					X
					X
					X
					X
					X	

Wetlands	Y	▪ Site preparation in or near wetlands (clearing grubbing, topsoil stripping, grading) ▪ Installation of pipeline through or adjacent to wetlands ▪ Construction of temporary and permanent access roads ▪ Construction of temporary and permanent ancillary structures and facilities ▪ Operation and maintenance activities in or adjacent to a wetland	Adv	▪ Reduction, loss or alteration of wetland habitat function ▪ Alteration of wetland hydrologic function and water quality ▪ Contamination from spills	X X X	

Legend: Y (Yes); N (No); U (Uncertain); P (Positive); Ntl (Neutral); Adv (Adverse)

Environmental Element	Project Inter-action? Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effect	Mitigation Discussed in: 9.3.1	Mitigation Discussed in: 9.3.2
Fish and Fish Habitat	Y	▪ Installation of pipeline through watercourses ▪ Construction of temporary and permanent access roads ▪ Construction of temporary and permanent ancillary structures and facilities ▪ Blasting activities near water bodies ▪ Hydrostatic testing ▪ Operation and maintenance activities	Adv	▪ Fish mortality and the alteration, disruption or destruction of fish habitat, resulting from ▪ Alteration of instream habitat ▪ Riparian habitat loss or alteration ▪ Increased suspended solid concentrations during in-stream construction ▪ Temporary blockage of fish movement ▪ Contamination from spills ▪ Bank instability at the crossing sites leading to bank erosion		X
Wildlife and Wildlife Habitat	Y	▪ Site preparation (clearing grubbing, topsoil stripping, grading) ▪ Construction of temporary and permanent access roads, ancillary structures and facilities ▪ Noise from blasting activities ▪ Increased vehicle traffic ▪ Pipeline installation ▪ Operation and maintenance activities	Adv	▪ Loss, alteration, fragmentation or reduced capacity of wildlife habitat ▪ Sensory disturbance to nesting birds and wildlife ▪ Mortality due to vehicle/wildlife collisions ▪ Mortality due to the physical disturbance of undiscovered nests, burrows, dens or other localized habitat on the RoW or access roads ▪ Increased predation potential on ungulates and small mammals related to sight-line impacts ▪ Increased hunting pressure	X X X X X X	
Species at Risk (federal) and Species of Special Status (provincial, territorial, local)	Y	▪ See wildlife, vegetation and fish elements	Adv	▪ Disturbance, alteration of habitat and/or mortality or destruction to species at risk or species of special status (wildlife, fish and/or vegetation)	X	

Legend: Y (Yes); N (No); U (Uncertain); P (Positive); Ntl (Neutral); Adv (Adverse)

Environmental Element	Project Inter-action? Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effect	Mitigation Discussed in: 9.3.1	9.3.2
Air Quality	Y	▪ Site preparation (clearing grubbing, topsoil stripping, grading) ▪ Operation and maintenance activities ▪ Use of equipment and vehicles during construction and operations	Adv	▪ Vehicle equipment emissions ▪ Dust ▪ Smoke from burning and slashing ▪ Trace levels of greenhouse gases ▪ Fugitive emissions	X X X X X	
Socio-Economic						
Human Occupancy/ Resource Use	Y	▪ Site preparation (clearing grubbing, topsoil stripping, grading) ▪ Increased noise levels during construction ▪ Temporary disruption of hunting, trapping or recreational activities during construction ▪ Noise from blasting activities ▪ Increased vehicle traffic	Adv	▪ Reduction in forestry land base for timber harvest ▪ Disruption of grazing activity ▪ Disruption of outfitting, trapping, hunting, recreational fishing ▪ Disruption of well water use during construction ▪ Limited access to trails and trailheads and change in user satisfaction during construction ▪ Alteration of view-scapes ▪ Interference with navigation on watercourses	X X X X X X X	
Heritage Resources	Y	▪ Site preparation (clearing grubbing, topsoil stripping, grading) ▪ Construction of temporary and permanent access roads ▪ Construction of temporary and permanent ancillary structures and facilities ▪ Pipeline installation ▪ Operation and maintenance activities	Adv	▪ Disturbance or loss of identified and unidentified heritage resources ▪ Disturbance of palaeontological resources	X X	

Legend: Y (Yes); N (No); U (Uncertain); P (Positive); Ntl (Neutral); Adv (Adverse)

Environmental Element	Project Inter-action? Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effect	Mitigation Discussed in: 9.3.1	Mitigation Discussed in: 9.3.2
Current Traditional Land and Resource Use	Y	• Site preparation (clearing grubbing, topsoil stripping, grading) • Construction of temporary and permanent access roads • Construction of ESD valve sites and SCADA repeater tower locations • Pipeline installation • Operation and maintenance activities	Adv	• Loss or alteration of Aboriginal traditional use sites (e.g. gathering places, habitation sites, sacred sites) • Disturbance to segments of trails • Disruption of, or inability to carry out traditional activities	 X 	X X
Socio and Cultural Well-being	Y	• Site preparation (clearing grubbing, topsoil stripping, grading) • Construction of temporary and permanent access roads • Construction of temporary and permanent ancillary structures and facilities • Pipeline installation • Operation and maintenance activities	Adv	• Alteration of community life during construction • Change in availability of commercial accommodation during construction • Increased traffic, disruption of traffic movements along Highway 52 during construction • Change in capacity of existing emergency services during construction and operation	X X X X	
Human Health/ Aesthetics	Y	• Site preparation (clearing grubbing, topsoil stripping, grading) • Construction of temporary and permanent access roads • Construction of temporary and permanent ancillary structures and facilities • Pipeline installation • Operation and maintenance activities	Adv	• Adverse human health effects could result in the event of a product release during operation • Increase in nuisance air emissions • Alteration of sense of safety and security	 X X	X

Legend: Y (Yes); N (No); U (Uncertain); P (Positive); Ntl (Neutral); Adv (Adverse)

Environmental Element	Project Inter-action? Y/N/U	Description of Interaction (How, When, Where)	Type of Potential Effect P/Ntl/Adv	Potential Adverse Environmental Effect	Mitigation Discussed in: 9.3.1	Mitigation Discussed in: 9.3.2
Other						
Accidents/ Malfunctions	Y	• Erosion and sediment control failure • Pipeline rupture or leak • Spills of hazardous materials or product release during construction and operation • Fire during construction and operation • Release of drilling mud during HDD • Line break cased by third party damage or corrosion	Adv	• Contamination or alteration of surface or groundwater quality, in-stream or riparian fish habitat, wetland function, plants and ecological communities, soil productivity, wildlife and wildlife habitat, human heath, livestock. • Rupture of, or damage to foreign lines • Fires during construction and operation	X X X	
Effects of the Environment on the Project	U	• Weather (severe snowstorms, rainfall and flooding events)	Adv	• Disruption of the construction schedule • Disruption of maintenance activities • Damage to infrastructure	X X X	

Legend: **Y (Yes); N (No); U (Uncertain); P (Positive); Ntl (Neutral); Adv (Adverse)**

9.3 Potential Adverse Environmental Effects

To address potential adverse environmental effects, SemCAMS has proposed several mitigation strategies to avoid or minimize the effects of the Project including: avoidance through route selection; scheduling of activities to avoid sensitive periods; development of mitigation measures and contingency plans; inspection during construction to ensure mitigation is implemented and effective; and maintenance activities during the operation of the Project.

For details on all of the mitigation proposed by SemCAMS, the reader should refer to the application and supporting documentation, which are available on the Board's website. These measures have provided the Board with a basis to assess the potential adverse environmental effects associated with the Project, and meet the objective of mitigating those effects.

9.3.1 Analysis of Potential Adverse Environmental Effects to be Mitigated through Standard Measures

In its application, SemCAMS has identified routine design and best practice measures to mitigate the potential environmental effects that were categorized in Section 9.2 as fitting into this analysis stream.

The following table provides additional discussion based on comments received by the NEB on the potential adverse environmental effects and the associated routine mitigative measures in which the NEB required further information from the company, or which involve SemCAMS' commitments to other federal and/or provincial departments or agencies.

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
Bio-Physical	
Terrain instability	▪ SemCAMS has undertaken a preliminary geotechnical investigation for the Project and has committed to conduct pre-construction, construction and post construction geotechnical assessments and the development of a geotechnical monitoring program based on these assessments. In addition to the routine design and mitigation measures outlined in the application and subsequent filings, SemCAMS will implement a Soil Erosion Contingency Plan. ▪ In addition to this standard mitigation, the Board recommends that SemCAMS file with the Board the results of field geotechnical assessments associated with terrain instability (refer to recommendation 9 in Section 9.7 of this ESR).

Reduced Soil Productivity from:
▪ topsoil/subsoil mixing;
▪ surface erosion until revegetation;
▪ difficulty revegetating some disturbed soils with high water or wind erosion potential; and
▪ compaction and rutting of topsoil or upper subsoil in root zone.
	▪ In addition to the routine design and mitigation measures outlined in SemCAMS' submissions, SemCAMS submitted the following plans which describe measures to mitigate the potential adverse environmental effect of the Project on soil productivity:
	  ▪ Wet/Thawed Soil Contingency Plan;
	  ▪ Soil Erosion Contingency Plan;
	  ▪ Flood and Excessive Flow Contingency Plan;
	  ▪ Spill Contingency Plan;
	▪ SemCAMS commits to a pipeline depth of cover which exceeds CSA standard.
	▪ SemCAMS commits to the development of an Environmental Protection Plan (EPP) and detailed alignment sheets that would be submitted to the Board prior to construction.

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
Reduced Air Quality from vehicle equipment emissions, dust and smoke from burning and slashing.	▪ Land clearing debris that is burned would be undertaken in accordance with applicable provincial regulation; all applicable permits would be obtained prior to burning and adhered to during burning. ▪ All burning will be undertaken during the low hazard fire season and initiated only if the ventilation index meets the appropriate regulatory requirements. ▪ Implement techniques to limit smoke production. ▪ Use of solar panels to power ESD valve stations, where practical.
Reduced Air Quality from trace levels of greenhouse gases, and fugitive emissions.	▪ SemCAMS' Integrity Management Plan and Construction Plan incorporate the guidelines set out in the CAPP Best Management Fugitive Emissions Management for Directed Inspection and Maintenance Programs (CAPP 2007). ▪ Please refer to the potential adverse environmental effect titled: *"human health effects associated with an accidental release of H_2S"* on page 85, for further information regarding air emissions during a pipeline rupture. ▪ A pilot flame or equivalent will be maintained in accordance with applicable federal or provincial regulations, on the existing producer's flare to ensure immediate and safe combustion during unexpected upsets or scheduled pigging.
Loss or alteration of native vegetation, rare plants and rare ecological communities.	▪ Limit areas of disturbance. ▪ Implement erosion control measures. ▪ Implement site specific mitigation for rare/special ecological plants and communities (i.e. transplant or propagate specimens). ▪ Restrict grubbing to the trench area where practical. ▪ Implement measures from the Plant Species and Ecological Communities of Concern Discovery Contingency Plan, in conjunction with soil handling procedures. ▪ Implement reclamation techniques including salvage and replacement of strippings and seed with native seed mix (peatlands would not be seeded). ▪ Minimize disturbance to old growth forests.
Loss, alteration, fragmentation or reduced capacity of wildlife habitat.	▪ Share existing access with other industrial users where feasible. ▪ Minimize habitat disturbance by paralleling existing linear disturbances to the extent feasible. ▪ Provide breaks for wildlife crossings (e.g. gaps in snow windrows, spoil pile, set-up of welded pipe). ▪ SemCAMS has identified restricted activity periods and setback distances for sensitive wildlife and other habitat features in Alberta and BC. ▪ Construction has been scheduled for fall and winter to avoid critical time periods related to migratory birds and woodland caribou calving. ▪ Construction schedule would avoid the 15 January to 30 April Ungulate Winter Range timing restriction in Alberta. ▪ Crossings of the Wapiti River, Calahoo Creek and Pinto Creek will be scheduled to occur prior to 15 January. ▪ SemCAMS has committed to "no-net-loss of Caribou habitat". The habitat restoration plan will be developed in consultation with the BC Ministry of the Environment (BC MOE). The restoration plan would be provided to

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
	stakeholders for review and comment and filed with the NEB upon completion, prior to construction. ▪ Minimize changes to habitat connectivity by restoring shrub and tree communities along select location of the Footprint (e.g. riparian areas, caribou winter range).
Mortality due to the physical disturbance of undiscovered nests, burrows, dens or other localized habitat on the RoW or access roads.	▪ Wildlife surveys were conducted during the summer of 2007 and summer of 2008. SemCAMS anticipates that similar conditions and wildlife would be present during construction. ▪ SemCAMS has a wildlife species of concern discovery contingency plan. ▪ SemCAMS has identified restricted activity periods and setback distances for sensitive wildlife and other habitat features in Alberta and BC. ▪ SemCAMS would provide training to all inspectors and contractors to identify specific habitat features for wildlife (e.g. bears and bear dens). ▪ Should a bear den be discovered, the appropriate authorities would be notified. ▪ Operate vehicles at an appropriate speed and yield to wildlife.
Reduction, loss or alteration of wetland habitat function, alteration of wetland hydrologic function and water quality, and contamination from spills.	▪ No clearing is to occur within the migratory bird nesting period between 1 May and 31 July. ▪ Construction and clean-up of wetlands would occur during frozen ground conditions. ▪ Minimize construction traffic. ▪ Implement the Wet/Thawed Soil Contingency Plan. ▪ Do not dewater any permanent wetland. ▪ Minimize the removal of vegetation and the disturbance of uplands adjacent to wetlands. ▪ Schedule maintenance activities in wetlands during frozen conditions to the extent feasible. ▪ Monitor wetlands hydrologic function as part of the post construction monitoring program (PCMP). ▪ SemCAMS would maintain communication with EC for the development post construction monitoring activities for wetlands of interest to EC.
Socio-Economic	
Alteration of Sense of Safety and Security.	▪ Strict adherence to Integrity Management Program. ▪ Project would fully comply with all applicable requirements of CSA Z662-07, for onshore oil and gas systems. ▪ Monitoring of the Pipeline 24 hours a day from gas control centre located in Edson, Alberta. ▪ Development of an Emergency Response Plan (ERP) in coordination with appropriate emergency responders. ▪ Continued consultation throughout the life of the Project with affected communities to review procedures and to ensure lines of communication between Project operation and communities remain open.
Human health effects associated with an accidental release of H_2S	▪ Minimize the possibility of a pipeline rupture through effective system design, appropriate construction methods, regular inspection and ongoing proactive operation and maintenance procedures.

Potential Adverse Environmental Effect	Proposed Standard Design or Mitigation Measures
	▪ The pipeline design and strategic placement of ESD valves, as well as SemCAMS' Integrity Management Program and preventative maintenance procedures, should limit the volume of a release in the event of a pipeline leak or rupture during operation. ▪ SemCAMS' Integrity Management Plan and Construction Management Plan incorporate the guidelines set out in the CAPP Best Management Fugitive Emissions Management for Directed Inspection and Maintenance Programs (CAPP 2007).
Disturbance to, or loss of, previously unidentified heritage resource	▪ Should any previously unidentified heritage resource sites be encountered during construction of the Project, activity at the site would be stopped and the Heritage Resource Contingency Plan would be implemented and the appropriate regulatory agencies notified. ▪ In addition to this standard mitigation, the Board recommends that SemCAMS file with the Board copies of its correspondence from the BC Archaeology Branch and from the Alberta Department of Culture and Community Spirit confirming that SemCAMS has obtained all archaeological and heritage resource permits and clearances, and a statement indicating how SemCAMS intends to implement any recommendations provided by the provincial departments (refer to recommendation 3 in Section 9.7 of this ESR).
Interference with navigation of waterways	▪ SemCAMS has submitted an application to TC for the following pipeline crossings deemed navigable pursuant to the NWPA: Murray River; Babcock Creek; Unnamed tributary of Calamagrostis Creek d-57-k; Flatbed Creek; Unnamed tributary to Redwillow River b-49-e; Redwillow River; Unnamed tributary to Redwillow River d-70f; South Redwillow River; Wapiti River and Pinto Creek. ▪ SemCAMS will ensure that it has met all of the applicable regulatory requirements for the proposed watercourse crossing and contingency plans of the above noted navigable watercourses.
Other	
Contamination or alteration of surface or groundwater quality, in-stream or riparian fish habitat, wetland function, plants and ecological communities, soil productivity, wildlife and wildlife habitat, human heath, livestock.	▪ Set out spill response procedures in the EPP and ERP. ▪ Implement and inspect sediment and erosion control measures, with particular attention during and after extreme precipitation events, and take remedial action where necessary. ▪ Use procedures to prevent fires, and train workers and contractors in fire prevention and response. ▪ Complete a detailed geotechnical evaluation along the proposed RoW.

Views of the Board

With respect to the environmental effects identified in section 9.2, other than those identified in the following Section 9.3.2, the Board is of the view that the adverse environmental effects are not likely to be significant if SemCAMS:

- effectively implements the standard design and mitigation measures proposed in its application and subsequent submissions; and
- adheres to the commitments made during the oral public hearing and the recommendations outlined in Section 9.7 of the ESR.

9.3.2 Detailed Analysis of Potential Adverse Environmental Effects

Fish mortality or the harmful alteration, disruption or destruction (HADD) of fish habitat

Background/Issues	▪ SemCAMS has identified the locations of watercourse crossings, species that are or could be present, vehicle and pipeline crossing techniques, mitigation measure, and contingency crossing locations and techniques. ▪ The crossing methods were selected based on which methods, with mitigation, could likely be constructed without resulting in a HADD of fish habitat. SemCAMS has further identified contingency crossing methods, some of which may result in a crossing method having the potential to result in a HADD. ▪ The watercourse crossings or contingency crossings where a potential source for a HADD may exist include: Murray River; Babcock Creek; Calamagrostis Creek; Flatbed Creek; Redwillow River; South Redwillow River; Calahoo Creek; Wapiti River and Pinto Creek.
Mitigation Measures	▪ Route selection criteria included minimizing the number of watercourse crossings. ▪ Minimize the disturbance of vegetation adjacent to watercourse crossings. ▪ Return the bed and banks to their preconstruction configuration with no realignment of the channel. ▪ SemCAMS would develop watershed-scale compensation measures (conceptual fish habitat compensation plan) with an associated effectiveness monitoring program in consultation with DFO, BC MOE, Alberta Environment (AENV), Alberta Sustainable Resource Development (ASRD), local stakeholders and First Nations/Métis groups. ▪ SemCAMS states that it would maintain ongoing consultation with DFO regarding the watercourse crossing techniques, contingency crossing locations, DFO authorization requirements and consultation initiatives. ▪ SemCAMS will incorporate any additional site specific mitigation measures proposed by DFO as part of the EPP. ▪ SemCAMS will undertake a winter assessment at the following locations: Murray River; Babcock Creek; Calamagrostis Creek; Flatbed Creek; Redwillow River, South Redwillow River, Cahahoo Creek and Wapiti River to determine the presence of flowing water at each of the crossing locations, and where water is flowing a water quality assessment would be conducted.
Monitoring	▪ HADD compensation requires monitoring to ensure measures installed are functional.

Views of the Board

In the event that the proposed project is approved, the Board expects SemCAMS to fulfill its commitment to comply with the applicable federal and provincial requirements for work in or near a water body. In addition to the Project-specific mitigation, the Board recommends that SemCAMS notify the Board and the relevant federal and provincial authorities, in writing, if any of the watercourse crossing techniques are changed from the proposed trenchless watercourse crossing method and the reason for that change prior to construction.

Evaluation of Significance for Fish mortality or the harmful alteration, disruption or destruction (HADD) of fish habitat

Frequency	Duration	Reversibility	Geographical Extent	Magnitude
Accidental, Isolated, Occasional	Immediate to Long Term	Immediate to Permanent	Local	Low to High
Adverse Effect				
Not likely to be significant				

Refer to Appendix 3 for definitions of the Evaluation of Significance Criteria.

Human Health Effects Associated with an Accidental Release of H_2S

Background/Issues	▪ Impacts to human health can potentially occur as a result of an accidental release of gas containing concentrations of H_2S in the event of a pipeline leak or failure. The severities of the effects on human health depend primarily on the concentration of H_2S that people are exposed to and the duration of the exposure. Low levels of H_2S are known to cause irritation of the mucous membranes, which may result in symptoms such as eye irritations. Low to moderate-level exposure can lead to olfactory impairment, which may impede or prevent a person's ability to take protective measures for themselves. Acute inhalation exposures have been reported to cause permanent or persistent neurological damage. High levels may lead to respiratory failure and death. ▪ John and Janys Boyte, John and Leslie Jamison, Ms. Janice Boyte, and the Horse Lake First Nation raised concerns about the potential risks of transporting 30 percent sour gas, including potential impacts to human health that may result from leaks and pipeline ruptures. Specific concerns included the adequacy of proposed emergency response measures, information provided to nearby residents and land users, and the number and placement of ESD valves.
Mitigation Measures	▪ The EPZ for the Project and the appropriate locations for the installation of ESD valves were calculated using the ERCB H_2S dispersion model v.1.15. The calculated size of the EPZ for the Project is approximately 14 km on either side of the pipeline in populated areas and approximately 30 km on each side of the pipeline in non- populated regions. The Project will utilize a total of 19 ESD valve sites along the proposed pipeline, which have been located to control potential product release volumes. ▪ The design, construction and operation of the pipeline will fully comply with the applicable requirements of the *Onshore Pipeline Regulations, 1999* (OPR-99) and all applicable requirements of the current version of CSA Z662-07. ▪ SemCAMS will implement its required Integrity Management Program. ▪ An ERP for the Project will be developed and implemented in the event of emergency. The ERP, which will be submitted to the Board for approval, will be developed in consultation with local authorities and people located within and adjacent to the EPZ, and will be updated. ▪ The pipeline design, placement of ESD valves and preventative maintenance procedures will limit the potential for a large-volume release in the event of a pipeline leak or rupture during operation.
Monitoring	▪ SemCAMS will maintain corrosion monitoring, internal inspection, use of corrosion inhibitors and periodic RoW patrols. ▪ SemCAMS will maintain Public Awareness Programs to ensure incidents are recognized and reported, and to identify potential small leaks which may not otherwise be readily identified through the SCADA system.

Views of the Board

During normal operations of the pipeline, H_2S is not expected to be released into the environment and significant leaks or ruptures are considered to be a remote possibility due to the required Integrity Management Program that SemCAMS would implement if the Project were to be approved.

Should the Project be approved, SemCAMS would be required to file with the Board, for approval, its Emergency Procedures Manual (EPM), including its ERP for the Project, and to file any modifications to the Manual as they occur (refer to recommendation 7 in Section 9.7 of this ESR). SemCAMS would also be directed to file with the Board evidence of its consultation conducted for the development of the final EPM, including a description of any comments and concerns raised during consultations and evidence demonstrating how the plan addresses, to the extent possible, issues raised during consultation (refer to recommendation 8 in Section 9.7 of this ESR).

The Board is of the view that, with the implementation of the design, construction, inspection and maintenance programs, mitigation measures and procedures outlined in the application and subsequent filings, along with any NEB-imposed conditions, the likelihood of a substantial leak or rupture of the proposed pipeline is very low. The Board therefore finds that the risks of exposure to H_2S and effects on human health associated with an accidental release would be minimized.

Evaluation of Significance Human Health Effects Associated with an Accidental Release of H_2S

Frequency	Duration	Reversibility	Geographical Extent	Magnitude
Accidental	Immediate	Permanent	Local	High
Adverse Effect				
Not likely to be significant				

Refer to Appendix 3 for definitions of the Evaluation of Significance Criteria.

Loss or Alteration of Aboriginal Traditional Use Sites, and Disruption to Traditional Activities

Background/Issues	▪ A total of 22 Aboriginal communities were identified as being potentially affected by the Project. Eighteen of these communities were originally identified by SemCAMS, while an additional four communities were identified in May 2008 by TC and DFO. ▪ A TLU study was undertaken for the entire proposed Project route. The study was conducted with the involvement of nine Aboriginal communities that expressed an interest in participating in the study. The study covered their traditional territories transected by the proposed route. The remaining 13 Aboriginal communities identified as being potentially affected by the Project either indicated no ongoing interest in the Project area, chose not to participate in SemCAMS' comprehensive TLU study, or were notified about the Project but did not notify SemCAMS of any interests or concerns relating to traditional land use relative to the Project.

	▪ A total of 144 traditional land use locations were identified. Twenty-five of these sites were located within the Project footprint, with one identified as a modern habitation site where no mitigation was recommended by participating communities. The remaining 24 traditional land use sites where mitigation was recommended included 18 trails, five medicinal plant gathering locales, and one sacred area (a battleground site). The sacred area, located west of the Redwillow River crossing, would be permanently and adversely affected by the construction of a segment of the as-filed pipeline route. ▪ The Horse Lake First Nation completed its own TLU study for the Mt. Not portion of the route. SemCAMS noted 16 traditional use sites that could potentially be impacted by the Project that were identified by the Horse Lake First Nation, but which were not indicated in the Mt. Not TLU study. SemCAMS indicated that details regarding the 16 sites were noted but not retained by SemCAMS. ▪ SemCAMS confirmed that the Project occurs within the area identified by the West Moberly First Nations as their traditional land use area. The West Moberly First Nations expressed an initial interest in participating in the TLU study, but later expressed an interest in completing their own TLU study. SemCAMS also confirmed that it had not received information regarding traditional use interests from the West Moberly First Nations. SemCAMS acknowledged it was respecting a request from Chief Wilson regarding guidance on the West Moberly First Nations' review of application materials and timing of future discussions. ▪ SemCAMS notified the four First Nations identified by DFO (Blueberry River First Nation, Doig River First Nation, Fort Nelson First Nation, and Prophet River First Nation) about the Project, and provided these First Nations with a copy of the amended Hearing Order and SemCAMS' completed TLU study. SemCAMS confirmed that it had not received any communication or indication from these four First Nations regarding potential impacts to traditional land use interests in relation to the Project.
Mitigation Measures	▪ SemCAMS has developed mitigation measures to avoid or reduce impacts to the 24 identified traditional land use sites within the footprint in collaboration with the nine participating Aboriginal communities, and committed to implementing all the mitigation requests provided by Aboriginal communities participating in the TLU study. ▪ SemCAMS has developed standard mitigation measures for potential traditional land use sites that may be encountered during construction. In the event previously unidentified traditional land use sites are encountered during construction, SemCAMS will implement its Contingency Plan for Traditional Land Use Sites Discovered during Construction. ▪ SemCAMS committed to considering information provided by potentially affected Aboriginal communities regarding potential impacts on current traditional land use resulting from the Project. SemCAMS further committed to incorporating any necessary mitigation measures for reducing or eliminating any potential impacts to identified traditional land-use sites into the Project EPP. ▪ The sacred area, located west of the Redwillow River crossing, would be avoided with the construction of the Mt. Not reroute, provided that the A98 access road is not utilized for any construction, operation or maintenance activities.
Monitoring	▪ SemCAMS committed to the use of environmental monitors, including monitors from interested Aboriginal communities, to protect traditional land uses and sites of significance for First Nations.

Views of the Board

With respect to potential adverse effects on resources utilized for traditional purposes by Aboriginal communities, SemCAMS has addressed potential impacts

to vegetation, water quality, fish and fish habitat, and wildlife and wildlife habitat in Section 9 above.

Should the Project be approved, the Board would expect SemCAMS, as per its commitments, to consider information provided by potentially affected Aboriginal communities regarding potential impacts on current traditional land use resulting from the Project, and to incorporate any necessary mitigation measures for reducing or eliminating any potential impacts to identified traditional land-use sites or interests into the Project EPP.

The Board would also direct SemCAMS to submit to the Board and potentially affected Aboriginal groups a plan describing monitoring procedures for the protection of Aboriginal heritage and traditional resources during construction (refer to recommendation 4 in Section 9.7 of this ESR). The Board would additionally require that SemCAMS file, on a monthly basis, reports on consultation activities undertaken for the Project during construction, including a summary of any issues or concerns raised, and a description of how any concerns or issues were addressed (refer to recommendation 6 in Section 9.7 of this ESR).

The Board is of the view that, taking into consideration SemCAMS' proposed Project-specific mitigation measures, and the Board's recommendation that SemCAMS carry out all environmental protection and mitigation measures outlined in its application and subsequent submissions, the Project is not likely to result in significant adverse effects to resources utilized for traditional purposes by Aboriginal communities.

Evaluation of Significance Loss or Alteration of Aboriginal Traditional Use Sites, and Disruption to Traditional Activities

Frequency	Duration	Reversibility	Geographical Extent	Magnitude
Accidental, Isolated, Occasional	Immediate to Long Term	Immediate to Permanent	Footprint to Local	Low to High
Adverse Effect				
Not likely to be significant				

Refer to Appendix 3 for definitions of the Evaluation of Significance Criteria.

9.4 Cumulative Effects Assessment

The assessment of cumulative effects entails considering the impact of the residual effects associated with the Project in combination with the residual effects from other projects and activities that have been or that are likely to be carried out, within the appropriate temporal and spatial boundaries and ecological context.

The Project entails the construction and operation of a pipeline that would transport dehydrated sour gas from BC to Alberta for processing. Project-specific environmental protection and

mitigation measures would address the majority of the potential residual effects associated with the construction and operation of the proposed Project. From the environmental effects analysis in section 9.0 the likely residual effects can be summarized as:

- sensory disturbances to wildlife, nearby residents or land users primarily from construction, monitoring and maintenance activities;
- the fragmentation, alteration and/or loss of terrestrial habitat within the region; and
- the fragmentation, alteration and/or loss of riparian, wetland and aquatic habitat within the region.

These Project related residual effects are likely to interact with similar corresponding residual effects resulting from other region-wide past and ongoing activities.

The past and present activities in the RSA that are likely to overlap with the Project include approved forest harvest, including the planned salvage logging in the Mountain Pine Beetle infested areas and continued oil and gas development. In addition, a number of mining and wind projects have been proposed. These include the Hermann and Roman mines, and the Tumbler Ridge, Bullmoose, Mount Clifford and Thunder Mountain wind energy projects.

With respect to current use of land for traditional purposes and cumulative environmental effects, the Saulteau First Nations (SFN), who participated in SemCAMS' Traditional Land and Resource Use Study, expressed concerns regarding the impact of further resource development on their traditional territory:

> *"Historically resource developments have displaced SFN from using large portions of our territory with the unfortunate and unacceptable social, cultural economic and environmental consequences. The Project will clearly add to their encroachment. There is a need to ensure that information is available to assess the potentially adverse effects that the Project will have in combination with other projects on the ability of the SFN to exercise their Treaty and Aboriginal rights"...*

SemCAMS noted in its information response to the Saulteau First Nations that it would seek to identify ways to address any potential impacts of the Project on Saulteau First Nations interests through continued consultation.

With respect to the sensory disturbance on wildlife, nearby residents or land users resulting from construction, monitoring and maintenance activities, the incremental effects are anticipated to be limited and low in magnitude.

With respect to the fragmentation, alteration and/or loss of terrestrial habitat and the fragmentation, alteration and/or loss of riparian, wetland and aquatic habitat within the region, SemCAMS proposed the following additional mitigation and compensation measures.

Fragmentation, Alteration and/or Loss of Terrestrial Habitat

SemCAMS identified that approximately 25 percent of the RSA has been cleared or directly disturbed by industrial, transportation, recreational, residential, and agricultural development. SemCAMS is of the view that the proposed project would make a small contribution to the regional cumulative effects risk during the construction and operation phases.

SemCAMS has committed to develop a no net loss habitat compensation program for the Redwillow woodland caribou range, to avoid further loss of relatively undisturbed habitat within this range.

Fragmentation, Alteration and/or Loss of Riparian, Wetland and Aquatic Habitat

The proposed Project has documented the crossing of approximately 70 watercourses within the Murray River and Wapiti River sub-basins. The vehicle and pipeline crossing methods have been selected to reduce the project-specific effects on fish and fish habitat. The incremental effects of aquatic and riparian habitat alteration are reversible in the medium to long-term, and are of low magnitude at the regional scale.

Project-specific effects on aquatic habitat will be mitigated through the implementation of appropriate crossing methodologies and a watershed scale habitat compensation program to be developed with DFO, BC MOE, AENV, ASRD and First Nations/Metis groups.

Views of the Board

The Board is of the view that the cumulative environmental effects that are likely to result from these interactions would be low to medium in magnitude and localized, taking into account SemCAMS' proposed Project-specific mitigation measures, compensation programs and the NEB's recommendations referred to in Section 9.7. Therefore, the Project is not likely to result in significant adverse cumulative environmental effects.

9.5 Inspection and Monitoring

SemCAMS stated that Environmental Inspectors would be assigned to the construction of the pipeline to ensure that the proposed mitigative measures are properly implemented. In addition, SemCAMS stated that appropriate specialists would be available onsite, when warranted, and would have expertise in the particular issue associated with the spread (e.g., paleontologist, geotechnical engineers, fisheries biologists). Project specific training programs will be developed for all construction and inspection personnel, and will be implemented to ensure that all individuals are aware of the environmental issues and their respective responsibilities. Responsibilities of the SemCAMS Project inspection team related to environmental program implementation are outlined in SemCAMS' environmental manual.

SemCAMS has committed to implementing a PCMP to determine the effectiveness of the measures implemented to mitigate the adverse environmental effects of the Project. The PCMP would include an assessment of reclamation, revegetation, erosion control and any weed problem areas along the pipeline RoW, ESD valve stations and SCADA towers. The PCMP would also

take into consideration recommendations made and any unresolved issues identified in the as-built report and, where warranted, measures would be developed to resolve any outstanding issues.

Views of the Board

The Board recognized SemCAMS' commitment to conduct post monitoring as a method of evaluating the effectiveness of the measures implemented to mitigate environmental effects of the Project. The Board strongly encourages SemCAMS to continue to work with and consult federal and provincial government authorities, local stakeholders and Aboriginal groups in the development of an effective post construction monitoring program.

The Board also notes that, pursuant to the NEB Act, the Board has its own inspection program and Board Environmental Inspectors are tasked with ensuring protection of the environment.

9.6 Follow-Up Program

The Project and its associated activities are generally routine in nature and the potential adverse environmental effects of the Project are expected to be similar to those of past projects of a similar nature in a similar environment. For this reason, the NEB is of the view that a follow-up program pursuant to the CEA Act would not be appropriate for this Project.

9.7 Recommendations

It is recommended that in any Certificate the NEB may grant, a condition be included requiring the applicant to carry out all of the environmental protection and mitigation measures outlined in its application, subsequent submissions or as otherwise agreed to during the public hearing process.

For the purposes of the following recommendations, the term "commencement of construction" includes the clearing of vegetation, ground-breaking and other forms of RoW preparation that may have an effect on the environment, but does not include activities associated with normal surveying operations.

Further, other recommendations include:

1) SemCAMS shall:

   a) file, at least 90 days before the planned commencement of construction, a table listing all commitments made by SemCAMS during the proceedings, commitments made through information requests, conditions imposed by the Board and the deadlines (if applicable) associated with each, excluding all environmental commitments contained within the EPP; and

   b) update the status of the commitments on a monthly basis and file the updates with the Board.

2) SemCAMS shall file with the Board, for approval, at least 60 days prior to the planned commencement of construction, an updated project specific EPP, which SemCAMS shall implement once approved. The EPP shall describe, but is not limited to, the following elements:

   a) all environmental and socio-economic protection procedures, mitigation and monitoring commitments, as set out in SemCAMS' application or as otherwise agreed to during questioning or in its related submissions; and

   b) updated alignment sheets.

3) SemCAMS shall file with the Board, at least 60 days prior to the planned commencement of construction activities:

   a) copies of correspondence from the BC Archaeology Branch and from Alberta Department of Culture and Community Spirit confirming that SemCAMS has obtained all archaeological and heritage resource permits and clearances; and

   b) a statement on how SemCAMS intends to implement any recommendations contained in (a).

4) SemCAMS shall submit to the Board and potentially affected Aboriginal groups, at least 60 days prior to the planned commencement of construction activities, a plan describing monitoring procedures for the protection of Aboriginal heritage and traditional resources during construction. The plan shall include, at a minimum:

   a) a list of those potentially affected Aboriginal groups who agree to participate as monitors during construction; and

   b) a description of the scope and methodology and justification for monitoring activities to be undertaken by SemCAMS and each participating Aboriginal group, including those elements of construction that will involve Aboriginal Monitors from potentially affected Aboriginal communities.

5) SemCAMS shall file with the Board, at least 30 days prior to the planned commencement of construction activities, copies of all required permits and approvals issued by the British Columbia Ministry of Forests and Range, the Integrated Land Management Bureau and the Ministry of Environment, including any conditions, terms or requirements.

6) SemCAMS shall file with the Board, on a monthly basis, reports on consultation activities undertaken for the Project during construction, including a summary of any issues or concerns raised, and a description of how any concerns or issues were addressed.

7) SemCAMS shall file with the Board for approval, at least 120 days prior to any submission of the Leave to Open application, 3 copies of its final Emergency Procedures Manual (EPM) for the Project, and shall file with the Board any modifications to the plan

as they occur. In preparing its EPM, SemCAMS shall refer to the Board's *Onshore Pipelines Regulations, 1999* and the corresponding Guidance Notes.

8) SemCAMS shall file with the Board, at least 120 days prior to any submission of the Leave to Open application, evidence of consultation conducted for the development of the final Emergency Procedures Manual Plan (Emergency Response Plan). The report shall include:

   a) a description of the SemCAMS'consultation program, addressing how SemCAMS identified the parties with whom it would consult, the methods and activities SemCAMS used to notify and consult with those parties, and copies of the materials or information regarding the Emergency Procedures Manual that were used for consultation;

   b) a description of any comments and concerns raised during consultations; and

   c) evidence demonstrating how the Emergency Procedures Manual addresses, to the extent possible, issues raised during consultation.

9) SemCAMS shall file with the Board within 60 days of commencing operation, a Field Geotechnical Assessment, completed by a registered professional engineer, describing the following:

   a) results of pre-construction slope stability assessments along the final pipeline route;

   b) results of terrain stability assessments conducted during pipeline construction;

   c) identification of any pipeline integrity or terrain stability related sites of concern, including a listing of slopes exceeding 15 percent grade, the length and grade of the slope, and erosion or stabilization measures implemented at the site; and

   d) a geotechnical monitoring program for the pipeline including a summary of proposed inspection methods, field instrumentation, inspection frequency and intervention thresholds for ground movement.

10) On or before the 31 of January of each of years 1, 2 and 5 after the approved Project is placed in service, SemCAMS shall file with the Board, and make available on its website for informational purposes, a post construction environmental report. This report shall address, but not be limited to, issues pertaining to the reclamation of native vegetation, plant species of special concern, weeds, water course crossings, wetland functions, and shall;

   a) identify on a map or diagram the location of any environmental issues which arose during construction;

   b) discuss the effectiveness of the mitigation applied during construction and the methodology used to assess the effectiveness of mitigation;

c) identify the current status of the issues identified (including those raised by landowners and Aboriginal groups), and whether those issues are resolved or unresolved; and

d) provide measures and timelines SemCAMS shall implement to consider and respond to unresolved concerns.

10.0 THE NEB'S CONCLUSION

The NEB is of the view that, with the implementation of SemCAMS' environmental protection procedures and mitigation measures, and the NEB's recommendations, the proposed Project is not likely to cause significant adverse environmental effects.

11.0 NEB CONTACT

Claudine Dutil-Berry
Secretary of the Board
National Energy Board
444 Seventh Avenue S.W.
Calgary, Alberta T2P 0X8
Phone: 1-800-899-1265
Facsimile: 1-877-288-8803
secretary@neb-one.gc.ca

APPENDIX 1: **Scope of The Environmental Assessment**

National Energy Board

Office national de l'énergie

File OF-Fac-Gas-S393-2007-01 01
28 October 2008

To: All Parties to Hearing Order GH-2-2008

Hearing Order GH-2-2008 regarding
SemCAMS Redwillow ULC (SemCAMS)
Amendment to the Scope of the Environmental Assessment Pursuant to the *Canadian Environmental Assessment Act*

On 4 March 2008, the National Energy Board released the scope of the environmental assessment for the Redwillow Pipeline Project. SemCAMS filed additional written evidence on 12 August 2008 and identified their intent to consider an approximately 7.5 km alternate route in the vicinity of Mount Notogosegunwatchi. The Board has amended the scope of the environmental assessment to reflect the updated information.

The NEB is a responsible authority (RA) pursuant to the *Canadian Environmental Assessment Act* for the proposed project and will ensure that an environmental assessment is conducted in accordance with the attached scope.

Yours truly,

AnneMarie Erickson

for
Claudine Dutil-Berry
Secretary of the Board

Attachment

444 Seventh Avenue SW
Calgary, Alberta T2P 0X8

444, Septième Avenue S.-O.
Calgary (Alberta) T2P 0X8

Canada

Telephone/Télephone : 403-292-4800
Facsimile/Télécopieur : 403-292-5503
http://www.neb-one.gc.ca
Telephone/Téléphone : 1-800-899-1265
Facsimile/Télécopieur : 1-877-288-8803

SemCAMS Redwillow ULC (SemCAMS)
Proposed Redwillow Pipeline Project
Scope of the Environmental Assessment Pursuant to the
Canadian Environmental Assessment Act

1.0 INTRODUCTION

The proposed Redwillow Pipeline Project (the Project) includes the construction and operation of a sour gas transmission pipeline from the Grizzly Valley area southwest of Tumbler Ridge, British Columbia to an area southwest of Grande Prairie, Alberta. A Certificate of Public Convenience and Necessity pursuant to section 52 of the *National Energy Board Act* (NEB Act) would be required and the Project would be subject to an environmental screening pursuant to the *Canadian Environmental Assessment Act* (the CEA Act).

2.0 SCOPE OF THE ASSESSMENT

2.1 Scope of the Project

The scope of the Project as determined for the purposes of the environmental assessment (EA) includes the various components of the Project as described by SemCAMS in its application submitted to the National Energy Board dated 7 December 2007, subsequent filing on 12 August 2008, and the physical works and activities described in this document.

The scope of the Project includes construction, operation, maintenance and foreseeable changes, and where relevant, the abandonment, decommissioning and rehabilitation of sites relating to the entire Project, and specifically, the following physical works and activities:

- approximately 150 km pipeline, with an outside diameter of 323.9 mm (NPS 12), from the Grizzly Valley area southwest of Tumbler Ridge, British Columbia to an existing gathering facility in Alberta, southwest of Grande Prairie;
- the pipeline would accommodate the transport of dehydrated sour natural gas containing up to 30 percent hydrogen sulphide (H_2S) and 15 percent carbon dioxide (CO_2) and would have a maximum capacity of 2,295 $10^3m^3/d$ (79 MMscf/d);
- a pig launching assembly located adjacent to an existing dehydration facility at
- B-33-G/93-P-03;
- radio towers associated with the Supervisory Control and Data Acquisition (SCADA) monitoring system;
- approximately 19 emergency shutdown valve stations;
- access roads to the valve station and communication sites;
- interconnections with producer pipelines (upstream) and the existing NW Wapiti Pipeline System operated by SemCAMS Affiliates (downstream);
- staging areas, temporary construction workspace, access roads, equipment laydown areas, and work camps, if required, are also included in the scope of the Project.

It should be noted that any additional modifications or decommissioning/abandonment activities would be subject to future examination under the NEB Act and consequently, under the CEA

Act, as appropriate. Therefore, at this time, these activities will be examined in a broad context only.

2.2 Factors to be Considered

The environmental assessment will include a consideration of the following factors listed in paragraphs 16(1)(a) to (d) of the CEA Act:

(a) the environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out;
(b) the significance of the effects referred to in paragraph (a);
(c) comments from the public that are received during the public review; and
(d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project.

In addressing the above factors, which are mandatory in any screening review under the CEA Act, the environmental assessment will demonstrate a consideration of available community knowledge and Aboriginal traditional knowledge as applicable.

In addition, pursuant to paragraph 16(1)(e), the EA will consider alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means.

For further clarity, subsection 2(1) of the CEA Act defines 'environmental effect' as:

(a) any change that the project may cause in the environment, including any change that the project may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species as defined in the *Species at Risk Act*;
(b) any effect of any change referred to in paragraph (a) on
    i. health and socio-economic conditions,
    ii. physical and cultural heritage,
    iii. the current use of lands and resources for traditional purposes by aboriginal persons,
    iv. any structure, site or thing that is of historical, paleontological, or architectural significance; or
(c) any change to the project that may be caused by the environment, whether any such change or effect occurs within or outside Canada.

2.3 Scope of Factors to be Considered

The EA will consider the potential effects of the proposed Project within spatial and temporal boundaries which encompass the periods and areas during and within which the Project may potentially interact with, and have an effect on components of the environment. These boundaries will vary with the issues and factors considered, and will include:

- construction, operation, decommissioning, site rehabilitation and abandonment or other undertakings that are proposed by the Proponent or that are likely to be carried out in

relation to the physical works proposed by the Proponent, including mitigation and habitat replacement measures;

- the natural variation of a population or ecological component;
- the timing of sensitive life cycle phases of wildlife species in relation to the scheduling of the Project;
- the time required for an effect to become evident;
- the time required for a population or ecological component to recover from an effect and return to a pre-effect condition, including the estimated degree of recovery;
- the area affected by the Project; and
- the area within which a population or ecological component functions and within which a Project effect may be felt.

For the purpose of the assessment of the cumulative environmental effects, the consideration of other projects or activities that have been or will be carried out will include those for which formal plans or applications have been made.

APPENDIX 2: Comments on the Draft Environmental Screening Report

The table below provides a summary of the comments received by the NEB on the Draft ESR. Explanations have been included for comments that did not result in changes to the ESR, and for comments that were addressed in part. SemCAMS provided several clarifications on wording which resulted in non-substantive changes throughout the ESR. These clarifications are not summarized below.

Interested Party	Comments	ESR Section(s) Where Wording was Modified or Added	Explanation as to Why The Wording Was Not Modified in the ESR
Transport Canada (TC)	TC clarified its scope of the project for the screening level environmental assessment to include the construction, operation and decommissioning of the following: ▪ Pipeline watercourse-crossings; ▪ Staging areas for the equipment used for construction of pipeline crossings; vegetation clearing of areas required for this construction; areas required for containing and storage of sediment discarded from this construction; ▪ Temporary and permanent vehicle road crossings; and ▪ Temporary workspaces and staging areas within fish stream riparian areas.	n/a	The Board notes the scope provided by TC is based upon its mandate, roles and responsibilities.
	TC requested the inclusion of Cumulative Effects as an Environmental Element of Interest to Government Agencies.	7.1	n/a
	TC requested the inclusion of the reference for the route selection criteria that was implemented by SemCAMS.	9.1	n/a
	TC requested the addition of a sentence to the views of the Board in relation to the requirements of approvals should the Applicant wish to deviate from the proposed route.	9.1	n/a
	TC requested the addition of residual effects and significance of any residual effects be added to the "Views of the Board".	n/a	The cumulative effects assessment has been modified to provide more clarity on the potential residual effects.
	TC requested further clarity as to why only the section on Fish Mortality, Human Health Effects and Loss of Aboriginal Traditional Use Sites were evaluated using Frequency/Duration/Reversibility/Geographical Extent/Magnitude.	n/a	Section 8.0 outlines the environmental assessment methodology. The Board has identified certain potential adverse environmental effects for detailed analysis based on public concern, the use of non-standard design or mitigation measures, or the

Interested Party	Comments	ESR Section(s) Where Wording was Modified or Added	Explanation as to Why The Wording Was Not Modified in the ESR
			relative importance of the elements in question in the context of this application.
	TC requested clarification on the conclusions relating to the significance of the cumulative effects.	9.4	n/a
Fisheries and Oceans Canada (DFO)	DFO requested the addition of Bull trout and Pearl dace in Section 6.0, as species of special concern.	6.0	n/a
	DFO requests that SemCAMS notify DFO or other relevant regulatory authorities should there be any changes regarding a trenchless crossing method.	9.3.2	n/a
	DFO suggests the addition of an analysis for the significance of adverse affects and the inclusion of a discussion on the residual effects.	n/a	The cumulative effects assessment has been modified to provide more clarity on the conclusions of the assessment.
	DFO requests the addition of "federal agencies" to recommendation no. 5.	n/a	The Board would direct the reader to paragraph 1624 of the hearing transcripts (GH-2-2008, vol. 2), in which SemCAMS has committed to file all of the mitigation measures for watercourse crossings proposed by DFO as part of the EPP for this project.
	DFO requests that recommendation no. 9 include the results of the geotechnical investigations for the trenchless watercourse crossings.	n/a	The geotechnical reports would be provided to the Board within 60 days of commencing operation, which would be upon completion of the watercourse crossings and construction of the pipeline facilities.
	DFO requests the addition of "federal agencies" to recommendation no. 10.	n/a	In section 9.7 the Board has strongly encouraged SemCAMS to continue to work with and consult federal and provincial government authorities, local stakeholders and Aboriginal groups in the development of an effective post construction monitoring program.
SemCAMS	SemCAMS recommended clarification to the wording related to the description of the RSA in Section 3.0.	3.0	n/a
	SemCAMS recommended clarification to the wording related to the description of the proposed pipeline RoW.	5.0	n/a

Interested Party	Comments	ESR Section(s) Where Wording was Modified or Added	Explanation as to Why The Wording Was Not Modified in the ESR
	SemCAMS recommended clarification to the wording related to the description of watercourse crossing techniques.	5.0	n/a
	SemCAMS recommended clarification to the wording related to the description of the watercourses crossed in BC.	6.0	n/a
	SemCAMS clarified the number of weed species observed in BC and Alberta.	6.0	n/a
	SemCAMS recommended additional wording to provide clarification regarding the identification of a sacred site along the as-filed portion of the pipeline.	n/a	The statement regarding the potential impact to the sacred area has been removed from section 6.0. The Board directs the reader to section 9.3.2 for clarity on the potential effects and proposed mitigation.
	SemCAMS requested an update to the application date that was identified in a footnote in Section 6.0.	6.0	n/a
	SemCAMS requested amending section 9.3.1 to provide clarification on the mitigation for Reduced Air Quality from trace levels of greenhouse gases, and fugitive emissions.	9.3.1	n/a
	SemCAMS recommended additional wording to provide clarification regarding the potential residual effects.	n/a	The cumulative effects assessment has been modified to provide more clarity on the conclusions of the assessment.
	SemCAMS suggested modification of the text to clarify the cumulative effects associated with terrestrial and aquatic habitat.	9.4	n/a
	SemCAMS requested that the Board consider revision of the submission date of the EPP to 30 days prior to the commencement of construction.	n/a	The Board has taken the request into consideration and has determined that a submission date of 60 days prior to construction would be incorporated.
	SemCAMS requested that the Board consider revision of the recommendations relating to the submission of Field Geotechnical Assessment.	n/a	The Board has taken the request into consideration and has determined that a fifteen percent threshold would be incorporated into the recommendation.

APPENDIX 3: Significance Criteria Definitions

The table below defines the criteria used by the NEB for evaluating the significance of the potential effects discussed in Section 9.3. The criteria and definitions are largely based on information used by SemCAMS within its application; however the NEB added its own criteria and corresponding definition for Evaluation of Significance.

Criteria	Definition
Frequency	**Accidental**: Occurs rarely over assessment period **Isolated**: Confined to specified period **Occasional**: Occurs intermittently and sporadically over assessment period **Periodic**: Occurs intermittently but repeatedly over the construction and operation period **Continuous**: Occurs continually over the construction and operation period.
Duration	**Immediate**: Event duration is limited to less than or equal to two days **Short term**: Event duration is longer than two days but less than or equal to one year **Medium term**: Event duration is longer than one year but less than or equal to ten years. **Long term**: Event duration is longer than ten years
Reversibility	**Immediate**: Residual effect is alleviated in less than or equal to two days **Short term**: Greater than two days and less than or equal to one year to reverse residual effect **Medium term**: Greater than one year and less than or equal to ten years to reverse residual effect **Long term**: Greater than ten years to reverse residual effects **Permanent**: Residual effects are irreversible
Geographic Extent	**Footprint**: The area directly disturbed by the Project construction and clean-up activities, including associated physical works and activities **Local Study Area**: Is based on the zone of influence within which plants, animals and humans are most likely to be affected by the construction and operation phases of the Project. For biophysical elements and resource use related to socio-economic elements, the LSA is defined by SemCAMS as a 2-km wide band centered on the proposed pipeline RoW. **Regional**: The area including and extending beyond the LSA. The boundary varies and is generally defined by the EPZ boundary for social elements. For biophysical elements the RSA is defined as a 30 km wide band centered over the proposed pipeline RoW. **Provincial**: The area extending beyond regional or administrative boundaries, but confined to BC or Alberta. **National**: The area extending within Canada.
Magnitude	**Negligible**: Residual effects are not detectable **Low**: Potential effects are detectable, but well within environmental, regulatory and/or social standards or tolerance. **Medium**: Potential effects are detectable and approaching, but below environmental, regulatory and/or social standards or tolerance. **High**: Potential effects are beyond environmental, regulatory and/or social standards or tolerance.
Evaluation of Significance	**"Likely to be significant"** would typically be for effects that are of high frequency, irreversible, long term in duration, regional in extent and of high magnitude **"Not likely to be significant"** would be for any adverse effect that does not meet the above criterion for Likely to be significant.